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ABSTRACT

To improve the children's television program "Sesame Street" while it is being produced, a program of evaluative research is being conducted by the Children's Television Workshop to provide constant feedback to the producers. Progress examination involves staged achievement testing of 100 viewing and 100 nonviewing, randomly assigned, four- and five-year-olds from day care centers. Each time the retests are given, the following concepts are measured: numbers, letters, body parts, forms, classification, sorting, relations, and puzzles. This text provides an explanation of testing techniques, tabular results, and guidelines for interpretation. (EMH)

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MEMORANDUM

TO: PRODUCERS AND ADVISORS

FROM: RESEARCH DEPARTMENT

RE: PRELIMINARY DATA FROM THE PROGRESS TESTING

DATE: JANUARY 27, 1970

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Two coordinated phases of research and evaluation are being carried out in relation to "Sesame Street": 1) a program of "formative" research, being conducted by the CTW research department, to improve the show as it is being produced; and 2) a national program of "summative" evaluation, being conducted by the Educational Testing Service of Princeton, New Jersey, to determine what has been accomplished. This is an interim report of one part of the formative phase of evaluation.

## The Progress Testing

A program of progress testing, currently under way, involves periodic achievement testing of about 100 viewers and 100 non-viewers of "Sesame Street". The children in Maine, New York, and Tennessee are mostly four- and five-year-olds from day care centers. The testing battery consists predominantly of the instruments designed expressly for CTW by Educational Testing Service of Princeton, New Jersey. Pretests were administered to all 200 of the children immediately prior to the November tenth premiere of the program. Periodic retesting is planned for periods of three weeks, six weeks, three months, and six months into the program. At the time of this report, only the earliest of the results up through the six-week testing period are available.

The results presented here are primarily for the use of the researchers, producers, and advisors of CTW. Accordingly, it is intended that this report should serve not as a set of final inter-

pretations and conclusions, but as a common reference for all who may participate in discovering its implications. The General Table of Contents will help to suggest the kinds of resources contained herein. Special attention should be given to the section on interpretive guidelines.

## Methods and Procedures

Sample.

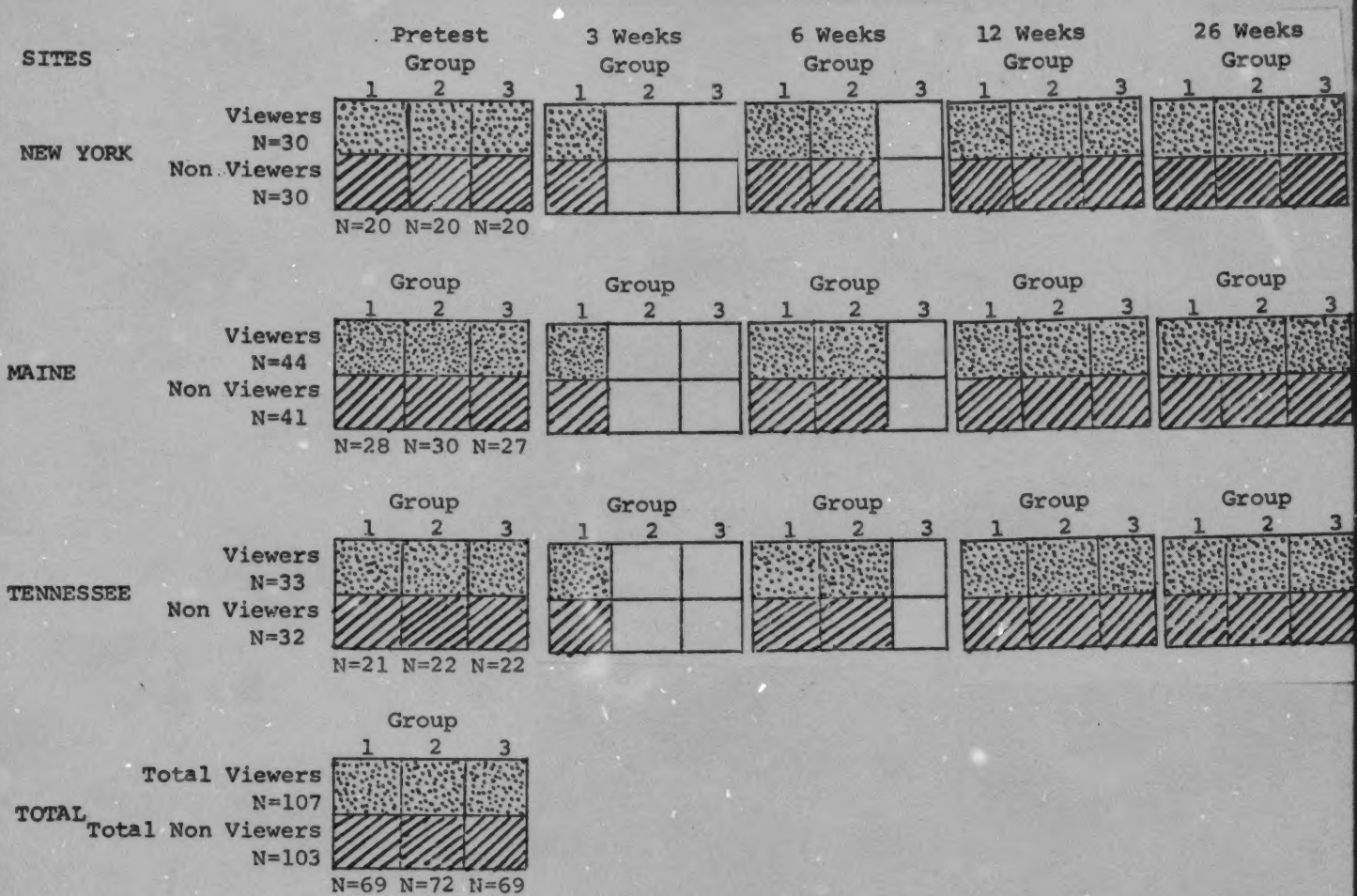
| | |
|---|---|
| Approximate Number: | 200 |
| Age: | Predominantly 4 and 5. |
| Locale: | Day-care centers |
| Sites: | Maine, New York, Tennessee |
| Economic Level: | Predominantly children of working mothers from low-income homes. |
| Ethnicity: | Maine - All white<br>New York - Nearly all black.<br>Nashville - half black and half white |

Design of the Experiment

The Table below presents the design of the experiment. Within each site, each child was randomly assigned to be a viewer or non-viewer for the entire six-month broadcast season. As a result, each classroom contains some viewers (E's) and some non-viewing controls (C's). All E's and C's were pretested just prior to the November tenth premiere of the program. A randomly selected third of the viewers and non-viewers from each site were retested three weeks into the program; the same third and another randomly selected third were tested again six-weeks into the program; and all will be retested at intervals of three-months and six-months from the start of the program.

## PROGRESS TESTING: THE EXPERIMENTAL DESIGN

TIME OF TESTING FROM START OF BROADCAST




Key: Represents groups of viewers tested at the indicated time of testing.

Represents groups of non-viewers tested at the indicated time of testing.

Note: Children were assigned randomly as viewers or non-viewers within each site. As a result each classroom includes some viewers and some non-viewers.

Testing Instruments.

The following tests developed expressly for CTW by the Educational Testing Service of Princeton, N.J., were administered to each child, individually, at each time of testing:

| | |
|---|---|
| Numbers | Classification |
| Letters | Sorting |
| Body Parts | Relations |
| Forms | Puzzles |

A detailed description of the items contained in these tests appears in the Results section, below.

Additional measures:

1. A picture test of familiarity with "Sesame Street" characters (to estimate the amount of viewing by non-viewers). The results are a part of this report.

## Interpretive Guidelines

A number of interpretive considerations should be kept in mind in evaluating the data of this study. Some of these results from the necessarily limited scope of the study (e.g., not all ages or settings of interest to CTW are represented); others from the "contaminating" factors due to conducting the experiment in naturalistic circumstances; and others, though these are minimal, which are characteristic of the particular research design employed. Below is a list of factors which could tend to depress or to amplify possible differences in the six-week achievement gains of viewers and non-viewers, and also some factors which bear upon the generalizability of the results.

1. Contamination of the experimental conditions

   a) When "viewers" are home ill they may miss seeing some programs; and when "non-viewers" are home ill they may see some programs.

b) Viewers may impart knowledge to their non-viewing peers within the same classroom.

c) The teacher may provide compensatory instruction in favor of the portion of children who are non-viewers within her classroom.

(Note: An estimate of the amount of viewing by "non-viewers" is available from a picture test of each child's knowledge about "Sesame Street" characters. The results are a part of this report.)

2. Time into broadcast season -

- Not all areas represented in the achievement tests had been covered in the program by the time of the six-week testing.

3. Reliability of the tests

- To whatever extent the tests fall short of perfect reliability, both the pretest-retest gains and the experimental-control comparisons will be attenuated. The Cronbach alpha reliability estimates are generally quite high.

4. Validity of the tests

- The tests are not intended or designed to cover exhaustively the full range of the program's effects on children. On the other hand, the tests clearly are direct measures of specific CTW goals.

5. Sampling and test-ceiling effects.

a) All the children were sampled from day-care centers, and all but a handful are over three years of age. These setting and age conditions produce ceiling effects on certain tests and subtests which in our experience do not hold for younger children, or for similar children in their own homes. We do not have a way to know how effective the program will be in producing gains among children not already at the ceilings of these particular tests. The results of the ETS summative research will be relevant in this regard.

b) The control group started out higher than the experimental, as indicated by pretest scores, a type of effect which often occurs by chance when randomization procedures are employed. Those acquainted with the phenomenon of regression to the mean will recognize the interpretive implications.

6. There was some attrition from pretesting to six-week testing. There is no reason to believe this will bias the results either way, but it could help to account for "negative gains" which appear occasionally.

## CHARACTER FAMILIARITY

The Character Familiarity Test was administered to experimental and control subjects at only the six week test period.

A glossy 9½"x11½" photograph of the four principal Sesame Street actors was shown to the child. In turn, each actor was pointed to and the child was asked, "Who is this?" If the child named the actor correctly, the response was labeled correct.

The child was then asked to identify, by pointing, each of the four characters. The examiner asked the child, "Show me Gordon." If the child pointed to Gordon, the response was labeled correct. The examiner then asked the child, "Where do we see him (or her)?", "Where does he live?", and "What does he do?" This last question was open-ended, and a child could give several answers, all of which could be counted correct.

Next a 4"x5" photograph of Buddy and Jim, a Sesame Street comedy team, was shown to the child. He was asked to name each character. If the child named one character correctly, the response was marked correct. If he named the second character correctly, that was marked correct.

The child was then asked what the comedy team did on Sesame Street. This was an open-ended question, and all correct responses were counted.

The child was then shown a 9"x11" drawing of the Sesame Street set with caricatures of the leading actors, puppets, and film characters. The child was asked, "Do you recognize anything in this picture?" This was an open-ended question, and any character who was identified correctly by name or description was counted as a correct response.

Naming of Characters

Out of the 61 control children, a small number have been watching the show, because on the naming test three children

named Susan, two named Bob and five named Mr. Hooper. In contrast, the 62 children in the experimental group have become far more familiar with the characters in that 18 named Gordon, 21 named Susan, 19 named Bob and 26 named Mr. Hooper.

Recognition

More of the children in the experimental and control groups were able to point to the character when given the name. In the experimental group over two-thirds of the children could identify all four of the main hosts.

Less than half the children in the control group could identify the characters. This was also true of the questions, "Where do we see him," and "Where does he live." It was interesting to note that the experimental children frequently responded to seeing the characters on Sesame Street whereas the controls would respond "on television".

It was evident that the control group associated the characters with people at home in that most of the responses to "What do these people do" were general everyday activities. The experimental group was more likely to site specific actions of individual characters, as well as the general activities. As a result the experimental group had not only twice as many responses but on the average fewer incorrect responses for each character.

Buddy and Jim had 50 of the experimental children and eight of the control children being able to name them when shown a picture. One reason for this is that in their "bits" they frequently call each other by name. As with the main hosts the control group evidenced some knowledge of these characters, but the experimental children could site many more activities of the characters.

Composite Drawing

When presented with a drawing the control group responded mostly in general terms, such as cow, witch, frog, or people. On the other hand, the experimental group made 304 more responses. This group was also more specific pointing out the various caricatures and giving either a name or telling the story about it.

Throughout the Character Familiarity Test, the control group made a number of correct responses indicating that some of the children in this group are viewing Sesame Street from time to time. The experimental group, with its great number and variety of responses, indicates more regular viewing and involvement.

| CHARACTER FAMILIARITY<br>E = 62<br>C = 61 | NAMING | | RECOGNITION | | WHERE DO WE SEE HIM? | | WHERE DOES HE LIVE? | |
|---|---|---|---|---|---|---|---|---|
| | E | C | E | C | E | C | E | C |
| GORDON | 18 | 0 | 41 | 24 | 59 | 35 | 57 | 21 |
| SUSAN | 31 | 3 | 54 | 31 | 58 | 35 | 55 | 25 |
| BOB | 19 | 2 | 47 | 26 | 57 | 28 | 45 | 21 |
| MR. HOOPER | 36 | 5 | 56 | 24 | 60 | 32 | 52 | 21 |
| BUDDY | 49 | 8 | | | | | | |
| JIM | 51 | 8 | | | | | | |

Composite Picture (E) Right = 297 Wrong = 121

Composite Picture (C) Right = 56 Wrong = 58

WHAT DO THEY DO ?

| RIGHT | | WRONG | | TOTAL | |
|---|---|---|---|---|---|
| E | C | E | C | E | C |
| 127 | 52 | 14 | 7 | 141 | 59 |
| 152 | 48 | 9 | 9 | 161 | 57 |
| 107 | 37 | 12 | 4 | 119 | 41 |
| 128 | 44 | 8 | 7 | 136 | 51 |
| 137 | 58 | 10 | 4 | 147 | 62 |

Total Responses = 418

Total Responses = 114

RESULTS

E.T.S. - C.T.W. Sesame Street Test Battery

## BODY PARTS

The Body Parts Test is comprised of four subtests: (1) Pointing, (2) Labelling, (3) Locating a body part given its function (multiple choice) and (4) Identifying a body part given its function. (Data p. 3)

In general, pretest performance was high on this measure with experimental and control subjects at or near the ceiling in performance on many items.

The total test consists of 42 items. The mean for the experimental group rose from 35.01 at Pretest to 37.12 at Six Week Testing. The control mean rose from 34.83 to 36.18. The mean gain for the experimental subjects (2.11 items) was slightly higher than the mean gain for the controls (1.35 items).

With the over-all high level of performance, mean gains from Pretest to Six-Week Testing were small. However positive gains were obtained for both groups on each subtest and in each case the gains were in favor of the experimental subjects.

### Pointing

The child was asked to locate (point to) specific parts of his own body. The subtest was comprised of 10 items. (Data p. 4)

Children in both experimental and control groups responded correctly on over 90% of the items in both the Pretest and the Six Week Testing.

The experimental mean rose from 8.99 items on Pretest to 9.34 items on Six Week Testing. The control mean rose from 9.09 to 9.27. Slight gains were obtained in both groups with the experimental ($\bar{x}$ gain = 0.35 items) gaining a little more than the control ($\bar{x}$ gain = 0.18 items).

### Labeling

This subtest contains 20 items. The examiner pointed to various parts of his own body and the child was asked to label

each part. (Data p. 5-6)

Performance was again high. On Pretest subjects in both experimental and control groups responded correctly on over 80% of the items.

With the high level of performance, only small positive gains were obtained. The experimental mean rose from 15.88 on Pretest to 16.82 at Six Weeks, with a mean gain of 0.94 items. The control mean rose from 15.88 to 16.42 with a mean gain of 0.54 items.

Function (Pictures)

This subtest was comprised of eight items. A child was shown a page with four body parts (hand, mouth, foot and eye or nose ear, leg and teeth). He was asked to find the picture that showed: (1) What you pet with, (2) Smile with, (3) Kick a ball with, (4) Look with, (5) Smell with, (6) Hear with, (7) Walk with, and (8) Chew with. (Data p. 7)

Performance was again high with over 85% correct in both groups on Pretest. Small positive gains were obtained in both groups. The experimental mean rose from 6.84 to 7.37 with a mean gain of 0.53 items. The control mean rose from 6.61 to 7.06 with a mean gain of 0.45 items.

Function (No Pictures)

The child was asked the following four questions: (1) What do you see with, (2) Pick things up with, (3) Lick with, (4) Listen with? He was required to name the appropriate body part. (Data p. 8)

Performance was high with over 85% correct in both groups on Pretest. Small positive gains were obtained. The experimental mean rose from 3.31 to 3.60 with a mean gain of 0.29 items. The control mean rose from 3.26 to 3.42 with a mean gain of 0.16 items.

## LETTERS

The Letters Test consists of eight subtests: (1) Matching, (2) Recognizing the domain of letters, (3) Recognizing letters, (4) Naming capital letters, (5) Naming lower case letters, (6) Recognizing initial sounds, (7) Finding letters in words, and (8) Reading. (Data p. 9)

<u>On each of the eight subtests that comprise the Letters Test the mean gain for the experimental group from Pretest to Six Week Testing surpassed that of the control group.</u>

The Letters Test consisted of 64 items. The experimental mean rose from 27.18 at Pretest to 33.01 at Six Week Testing, a mean gain of 5.83 items. The control mean rose from 30.37 to 32.38, a mean gain of 2.01 items.

The subtests are discussed individually below.

### Matching

There were 12 items in Matching. The child was presented with an object, number or letter and was required to find an identical "picture" from a set of four alternatives. (Data p. 10)

Performance was high on this subtest with over 85% correct for both groups on Pretest.

The experimental mean rose from 10.65 items on Pretest to 11.43 items on Six Week Testing with a mean gain of 0.78. The control mean rose from 10.94 on Pretest to 11.35 at Six Weeks for a mean gain of 0.41.

### Recognizing the Domain of Letters

This subtest consisted of two items: (1) Given a page with eight letters the child was asked, "What are thse called?" and (2) "Are they used to read or are they used to count?" (Data p. 11)

On Pretest only 29% of the experimental subjects answered "letters" to Question 1. At Six Weeks 52% answered this correctly.

resulting in a 23% gain on this item. For the control group 40% answered correctly on Pretest, and 39% at Six Weeks for a loss of one per-cent on this item.

The second question was answered correctly by 49% of the experimental children on Pretest and 48% at Six Weeks for a loss of one per-cent. The control group went from 53% to 49% correct for a loss of four per-cent. This item has at least a 50% chance factor and does not seem to provide useful information in its present form.

Recognizing Letters

This subtest contained eight items. A child was presented a page with four letters and asked to point to a particular letter (Find the "W".) (Data p. 12)

The experimental mean rose from 3.56 on Pretest to 4.62 at Six Weeks, a mean gain of 1.06 items. The control mean rose from 3.83 to 4.27, a mean gain of 0.41 items.

The experimental group showed greater Pretest to Six Week gains than the control group in each of the eight items.

Two particular items warrant special attention. Experimental subjects showed a 31% gain in the ability to recognize "J" from Pretest to Six Weeks compared to a 6% gain by control subjects. A positive gain of 24% was obtained for experimental subjects on recognizing "t" as compared with a 10% gain by controls.

Naming Capital Letters

This subtest was comprised of 16 items, each item a capital letter. The child was required to "name" each letter. (Data p. 13)

The mean for the experimental group rose from 4.37 items on Pretest to 6.34 at Six Weeks, a mean gain of 1.97 items. The control mean rose from 5.52 to 6.34, a mean gain of 0.82 items.

Letters That Were Taught - For these eleven letters, the experimental group showed a 14.05 per-cent gain (30.39 per-cent to 44.44 per-cent), and the controls, a 4.58 per-cent gain (from 37.75 per-cent to 42.37 per-cent). On the five letters which were not taught, the experimental group showed only a 9.30 per-cent gain (from 20.50 to 29.80 per-cent), and the controls a 6.34

per-cent gain (27.26 to 33.60 per-cent).

The major portion of the differential gain between viewers and non-viewers in Naming Capital Letters is on letters which were treated in the shows.

Naming Lower Case Letters

This subtest was comprised of eight items, each item a lower case letter. The child was required to name each letter. (Data p. 14)

The mean for the experimental group rose from 1.44 on Pretest to 2.22 at Six Weeks, a mean gain of 0.78 items. The control mean rose from 1.70 to 2.14, a gain of 0.44 items.

Letters That Were Taught - For these four letters, the experimental group showed a 10.68 per-cent gain (from 16.97 per-cent to 27.65 per-cent) and the control group showed a 5.02 per-cent gain (from 19.53 per-cent to 24.55 per-cent). On the four lower case letters which were not taught, the experimental group rose 8.70 per-cent (from 18.95 per-cent to 27.65 per-cent) and the controls rose 7.18 per-cent (from 21.55 per-cent to 28.73 per-cent).

In the lower case letters the major portion of the differential gain between the experimental group and the control group is on letters which were treated in the shows.

Naming Capital Letters and Lower Case Letters

The Naming Capital Letters subtest and the Naming Lower Case Letters subtest were combined to look at all the letters treated on the shows and all those not treated on the shows.

For the 15 letters taught, the experimental group gained 13.81 per-cent (from 26.15 per-cent to 39.96 per-cent) and the control group had a 4.34 per-cent gain (from 33.28 per-cent to 37.62 per-cent). There is a difference of 9.47 per-cent in the amount gained by the groups. For the nine letters not taught the experimental group showed a 7.03 per-cent gain (from 19.81 per-cent to 28.84 per-cent) and the control group showed a 6.71 per-cent gain (from 24.72 per-cent to 31.43 per-cent). There is only a difference of .32 per-cent in the two groups in the amount of gain for letters not taught on the show.

The letters which were taught on the show showed the largest differential gain between viewers and non-viewers.

Initial Sounds

There were four items in Initial Sounds. The child was shown a page with four pictures (sock, table, car and ring or cat, pencil, ball and apple). He was required to find objects whose name started with (1) T, (2) C, (3) A and (4) P. (Data p. 15)

The mean for the experimental group rose from 1.16 on Pretest to 1.47 at Six Weeks, a gain of 0.31 items. The control mean fell from 1.81 at Pretest to 1.44 at Six Week, a mean loss of 0.37 items.

This is misleading, however, as in two of the four items control subjects gained more than experimental and in a third item the gains were equal. The difference is totally attributable to one item on the subtest.

The reliability of this subtest is questionable and there is some doubt as to whether it provides any useful information in its present form.

Finding the Letters in Words

This subtest was made up of eight items. For each item the child was shown a letter and then shown a set of three-letter words. He was asked to find the word that contained the given letter. This subtest is actually an embedded figures test where a letter is embedded in a word. (Data p. 16)

Four of the items were very easy for the children with over 90% correct responding on Pretest by both groups.

The mean for the experimental group rose from 5.89 at Six Weeks, a mean gain of 0.61 items. The control mean rose from 5.60 to 5.93, a gain of 0.33 items.

Reading

This subtest consisted of six items, each item a word. The child was presented a word and asked, "What does this say?" (Data p. 17)

Performance on this subtest was extremely low for both groups with less than 10% passing any item on Pretest. Gains

were too negligible and inconsistent to be interpretable.

Recitation of Alphabet

The child is asked to say the ABC's. If he makes no response the examiner provides the first two letters and asks the child, "What comes next?' For scoring purposes the letters of the alphabet were numbered from 1 to 26.

Both the experimental and control groups were able to recite 30% of the alphabet on the Pretest (from A to H).

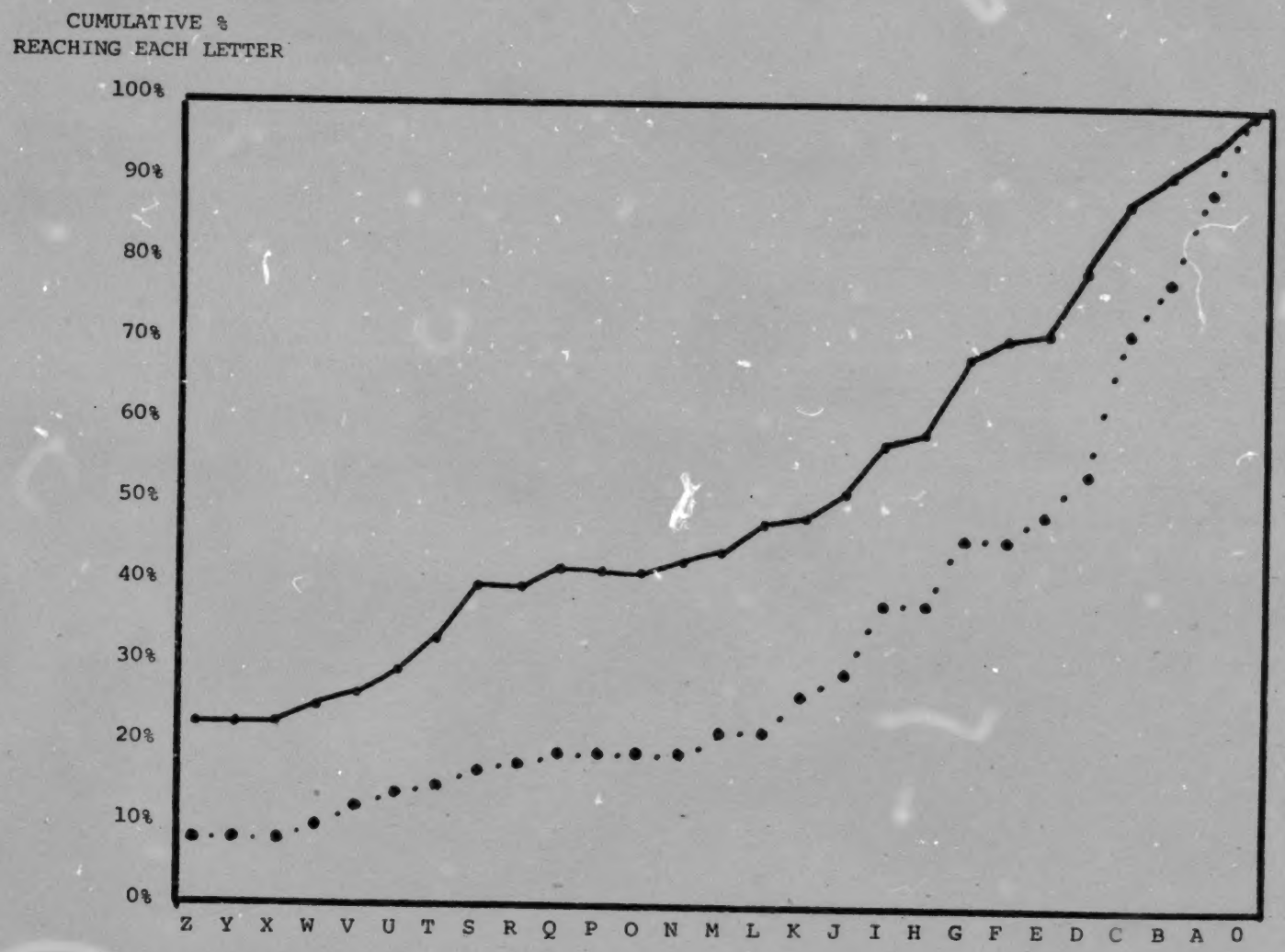
On the Six Week Test the experimental groups made greater gains than the control groups (a mean of 4.61 letters gained by the experimental groups and a mean of 1.90 letters gained by the control groups). These gains varied from site to site.

The experimental groups in both Maine and Tennessee had gains of about two letters above the mean, while the Hempstead experimental group scored about three letters below the mean for the experimental groups.

RECITATION OF THE ALPHABET

EXPERIMENTAL GROUP

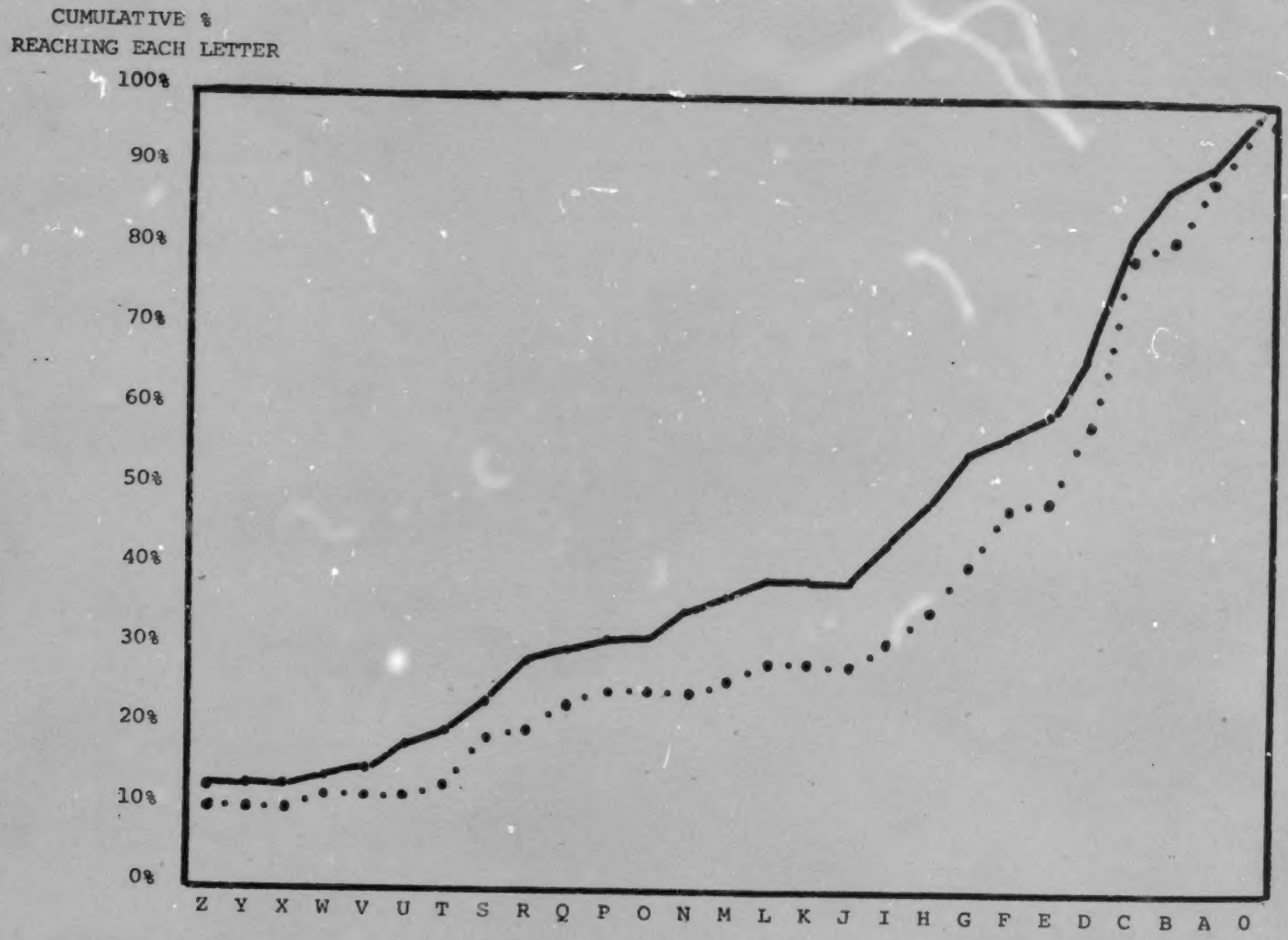
PRETEST N = 72  6 WEEK N = 65



RECITATION OF THE ALPHABET

CONTROL GROUP

PRETEST N = 69 6 WEEK N = 66




PRETEST .....

6 WEEK _____

## FORMS TEST

The Forms Test was comprised of two subtests: (1) Recognizing Forms and (2) Labelling Forms. This was a very short test, the entire measure consisting of only eight items. (Data p. 18)

The experimental mean rose from 4.07 on Pretest to 5.37 at Six Weeks, a mean gain of 1.30 items. The control mean rose from 4.24 to 4.94, a gain of 0.66 items.

### Recognizing Forms

A simple page with four forms was presented to the child. He was asked to find (1) a circle, (2) a rectangle, (3) a triangle and (4) another triangle. (Data p. 19)

At Six Weeks the experimental and control groups reached the ceiling level of performance in circle. On rectangle the per-cent of correct responding rose from 31 to 55 for experimental subjects, a 24% gain in performance.

The control subjects rose from 30% to 45%, a gain of 15% in this item.

On item 3, triangle, experimental showed a gain of 9% compared to a 3% gain by control subjects. Due to programming difficulties, results on item four are not yet available.

### Labelling Forms

The subject was shown a page with four forms: (1) square, (2) rectangle, (3) circle and (4) triangle. He was asked to name each form. (Data p. 20)

The mean for the experimental group rose from 1.83 to 2.85, a mean gain of 1.02 items. The control mean rose from 4.24 to 4.90, a gain of 0.66 items.

On three of the items (square, rectangle and triangle) the experimental group showed gains of over 30% from Pretest to Six Week Testing.

## NUMBERS

The Numbers Test consists of eight subtests: (1) Recognizing the Domain of Numbers, (2) Recognizing Numerals, (3) Labelling Numerals, (4) Recognizing Amount, (5) Counting out Solid Objects, (6) Birds (Counting pictorial objects and adding one), (7) Cookies (Counting out pictorial objects and subtracting one, (8) General Questions. (Data p. 21)

In all but the first subtest the mean gain for the experimental group from Pretest to Six Week Testing surpassed the mean gain of the control group.

The total Numbers Test consisted of 54 items. The experimental mean rose from 26.32 to 32.91, a mean gain of 6.59 items. The control mean rose from 30.85 to 32.71, a mean gain of 1.86 items.

The 12.4% increment in performance by the experimental group compared to the 3.5% increment for control subjects indicates that substantial gains were made in the area of numbers.

Notable gains were made in certain subtests while only slight positive movement was found in others. These subtests are discussed individually below.

### Recognizing the Domain of Numbers

This subtest was made up of two items. (1) The child was presented a page with eight numbers and asked, "What are these called?" (Data p. 22)

On Pretest, 48% of the experimental group answered correctly. At Six Weeks, the percentage passing rose to 69%, a gain of 21%. An equivalent gain was found in the control group, however, which rose from 53% passing on Pretest to 75% at Six Weeks, a 22% increment in performance.

This substantial gain in both groups may reflect classroom learning. Another possibility is that control subjects,

as well as experimental were learning from Sesame Street. A closer look at the data by experimental sites and scores in the Character Familiarity Index may help explain this result.

Item 2 asked if numbers were used to read or to count. This item, like its counterpart in the Letters Test, is of questionable reliability. At Pretest 69% of the experimental subjects answered correctly. This rose to 81% at Six Weeks to a 12% increment in performance. Eighty-four per-cent of the control group answered correctly on Pretest and 83% at Six Weeks for a 1% loss in performance.

Recognizing Numerals

This subtest was comprised of six items. A child was presented a page with four numerals and asked to find the 1, 4, 10, 2, 6 or 20. (Data p. 23)

On each item in the subtest the increment in performance from Pretest to Six Weeks Testing was greater for the experimental than for the control group.

With the exception of "20", there was an almost uniform gain of 20% on each item by the experimental group. The control group ranged from a loss of 9% to a gain of 10% on these same items.

The numeral "20" which showed only a 9% gain by the experimentals was not treated in Sesame Street.

The experimental mean on this subtest rose from 3.03 to 4.23, a mean gain of 1.20 items (of six). The control mean rose from 4.02 to 4.15, a mean gain of 0.13 items.

Naming Numerals

This subtest was comprised of 15 items, each item a numeral. The child was asked to label each numeral as it was presented. (Data p. 24)

The experimental mean rose from 4.63 on Pretest to 7.09 at Six Weeks, a mean gain of 2.46 items. The control mean rose from 6.06 to 6.79, a mean gain of 0.73 items.

This mean gain results in a 15.6% increment in performance for the experimentals compared with a 2.9% increment in the control group.

Ladybugs (Recognizing Amount)

This subtest is made up of eight items. The child is presented with a page on which are printed boxes containing various numbers of ladybugs. He is asked, in turn, to find boxes with one, more, two, fewer, five, fewest, most, or the same number of ladybugs. (Data p. 25)

Gains on this subtest were not substantial; however, the slight positive gains obtained were in favor of the experimental group.

The experimental mean rose from 4.65 on Pretest to 5.34 at Six Weeks, a mean gain of 0.67 items. The control mean rose from 4.94 to 5.29, a mean gain of 0.35 items.

Checkers

This subtest consists of nine items. The child is given ten checkers and asked to count them and demonstrate knowledge of various amounts by separating 4, 2, 6, all, and some of the checkers. In two items he was also asked to identify which contained more checkers, the stack or the cluster. (Data p. 26)

The experimental mean rose from 5.52 items on the Pretest to 6.26 items on the Six Week Test for a mean gain of 0.74 items. The control group had a mean gain of 0.40 items rising from 5.92 items on Pretest to 6.32 items at Six Weeks.

This mean gain results in a 9.0% increment for the experimental group and a 4.63% gain for the control group. The gains on this test, however slight, were in favor of the experimental group.

Checkers (Item 32 Counting Checkers)

A row of 10 checkers was placed in front of the child and he was asked to count them. The item was scored correct if the child said there were 10 checkers and incorrect if his answer was under or over 10.

Performance on this item was rather low in both experimental and control groups in all three sites. The gains in both the experimental and control groups were also quite small and there was no appreciable difference between the control group and the experimental groups.

Birds (Numerosity and Addition)

There are two items on this subtest. The child is shown a page with three birds and is asked, "How many birds are there on this page." He is then asked how many birds there would be if one more bird were put on the page. (Data p. 27)

The experimental group mean rose from 1.47 on Pretest to 1.68 on the Six Week Test, for a gain of .21 items. The control group mean remained constant at 1.64 items.

The increment in terms of percentage is 9.50 percent gain for the experimental group and 0.50 per-cent gain for the control group. The largest item gain is a 16% gain for the experimental group in the item dealing with addition of a bird as compared with a 1% gain for the control group.

Gains on this test were markedly in favor of the experimental group.

Cookies (Numerosity and Subtraction)

This subtest contained two items. The child was shown a page with four ginger bread men cookies and asked how many cookies there were and how many there would be left if one were eaten. (Data p. 28)

The mean for the experimental group rose from 1.37 items on the Pretest to 1.62 items on the Six Week Test for a gain of 0.25 items. The mean for the control group dropped from 1.61 items to 1.52 items for a loss of .09 items.

There was a 11.50% increment for the experimental group and a 5.50% loss for the control group.

General Questions

This subtest consists of ten items. The first five questions asked, in turn, were how many hands, ears, heads, fingers and feet do you have. If I cut an apple in half, how many pieces will there be, and, in turn, how much is 2+1, 5+3, 3-1 and 2x2 were the last five questions. (Data p. 29)

The mean for the experimental group rose from 4.53 items in the Pretest to 5.40 items at Six Weeks, for a gain of 0.87 items. The control group rose from 5.44 items on the Pretest

to 5.56 items at Six Weeks for a gain of 0.12 items.

Gains on this test were not substantial, but there was a slight advantage to the experimental group.

Counting

The child is asked to count as far as he can; however, the item is only scored from 1 to 20.

The control groups in all three sites scored slightly higher on the Pretest than the experimental groups. This difference was not evident in the Six Week scores, however, since the experimental groups made greater gains than the control groups.

## SORTING

The Sorting Test was comprised of two subtests, Sorting and Completion. To provide a clearer picture of the findings these subtests are discussed separately. (Data p. 30)

### Sorting

Here the child is shown a page with four objects and asked to find an object that doesn't belong. This is a fairly direct test of a similar "singing game" that appears on Sesame Street. (Data p. 31)

There were six items in this subtest. Experimental subjects showed increments in performance on these items ranging from 15% to 43%. Control subjects showed increments ranging from 1% to 17%.

The experimental mean rose from 2.88 on Pretest to 4.51 at Six Weeks, a mean gain of 1.63 items. The control mean rose from 3.56 to 4.09, a mean gain of 0.53 items.

These gains reflect a 25.8% increment in performance on this subtest by experimental subjects compared with an 8.8% increment in the control group.

### Completion

This subtest was made up of six items. Each item was of the following form: "You eat bread, You eat chicken. What else do you eat?" (Data p. 32)

Performance on this subtest was very high. Children in both groups reached the ceiling level of performance on several items. The experimental mean rose from 5.45 to 5.75, a mean gain of 0.30 items. The control mean rose from 5.32 to 5.62, a similar gain of 0.30 items.

It is interesting to note one item of this subtest, "What else is round?" On Pretest 81% of the children in both experimental and control groups answered this question appropriately. At Six Weeks 94% of the experimental and 82% of the controls answered correctly, resulting in a 13% gain by the experimentals compared with a 1% gain by the control group.

## RELATIONS

There were 10 items in the Relations Test. Here children were shown sets of four pictures and asked to find: the biggest bear, the bird nearest the cage, etc. (Data p. 33-34)

The experimental mean rose from 7.24 on Pretest to 8.28 at Six Weeks, a gain of 1.04 items. The control mean rose from 7.68 on Pretest to 8.39 at Six Weeks for a gain of 0.71 items.

Several items deserve special attention. Children in both were at the ceiling level of performance on two items, "biggest" and "on".

The relation "through" although treated in several ways on Sesame Street showed a 7% decrement in performance for the experimental group. The item used to test the child's understanding of "through" consists of four pictures of a dog in various relationships to a fence. It is not clear which dog is actually "through" the fence. This 7% decrement most likely reflects ambiguity in this particular test item.

The experimental group showed a 29% increment on "around" as compared to a 10% increment in the control group.

## CLASSIFICATION

The Classification Test was made up of 18 items. On 13 of these items children were shown a page with three pictures. These pictures had one attribute in common. The child was then asked to choose a fourth object (from a set of four pictures) that also shared this attribute. (Data p. 35-37)

The experimental group responded correctly on 63% of these 13 items at Pretest and in 82% at Six Weeks, a 19% increment in performance. The control group responded correctly on 67% of the 13 items at Pretest and 77% at Six Weeks, a 10% increment in performance.

Item level data on the remaining five items is not yet available due to programming difficulties. Mean scores on the test are available however.

The experimental mean rose from 8.16 on Pretest to 10.71 at Six Weeks, a mean gain of 2.55 items. The control mean rose from 8.68 to 9.71, a mean gain of 1.03 items.

## PUZZLES

The puzzles test was made up of 10 items. On items 1-5 the child was shown four pictures and asked to find the picture that was "funny" or "had something wrong with it". (Data p. 38-39)

On the remaining five items the child was shown a picture and asked, "What's missing?" or "What's wrong here?"

The mean for the experimental group rose from 5.34 to 6.55, a mean gain of 1.21 items. The control mean rose from 5.94 to 6.71, a mean gain of 0.77 items.

However, there were severe problems with many items on this test and the usefulness of the measure as it now stands is questionable.

DATA TABLES

E.T.S. - C.T.W. Sesame Street Test Battery

| E.T.S. - C.T.W. SESAME STREET TEST BATTERY | NUMBER OF ITEMS | EXPERIMENTAL | |
|---|---|---|---|
| | | $\bar{X}$ PRETEST | $\bar{X}$ 6 WEEK |
| 1. BODY PARTS | 42 | 35.01 | 37.12 |
| 2. LETTERS | 64 | 27.18 | 33.01 |
| 3. FORMS | 8 | 4.07 | 5.37 |
| 4. NUMBERS | 53 | 26.32 | 32.91 |
| 5. SORTING | 12 | 8.33 | 10.26 |
| 6. RELATIONS | 10 | 7.24 | 8.28 |
| 7. CLASSIFICATION | 18 | 8.16 | 10.71 |
| 8. PUZZLES | 10 | 5.34 | 6.55 |
| TOTAL BATTERY | 217 | 121.65 | 144.21 |

| CONTROL | | MEAN DIFFERENCE 6 WEEK PRETEST | |
|---|---|---|---|
| $\bar{X}$ PRETEST | $\bar{X}$ 6 WEEK | EXPER. | CONTROL |
| 34.83 | 36.18 | 2.11 | 1.35 |
| 30.37 | 32.38 | 5.83 | 2.01 |
| 4.24 | 4.90 | 1.30 | 0.66 |
| 30.85 | 32.71 | 6.59 | 1.86 |
| 8.88 | 9.71 | 1.93 | 0.83 |
| 7.68 | 8.39 | 1.04 | 0.71 |
| 8.68 | 9.71 | 2.55 | 1.03 |
| 5.94 | 6.71 | 1.21 | 0.77 |
| 131.47 | 140.69 | 22.56 | 9.22 |

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| C.T.S. - C.T.W. SESAME STREET TEST BATTERY | NUMBER OF ITEM | EXPERIMENTAL | |
|---|---|---|---|
| | | % PASSED PRETEST | % PASSED 6 WEEK |
| 1. BODY PARTS | 42 | 83.35 | 88.38 |
| 2. LETTERS | 64 | 42.46 | 51.57 |
| 3. FORMS | 8 | 50.87 | 67.12 |
| 4. NUMBERS | 53 | 49.66 | 62.09 |
| 5. SORTING | 12 | 69.41 | 85.50 |
| 6. RELATIONS | 10 | 72.40 | 82.80 |
| 7. CLASSIFICATION | 18 | 45.33 | 59.50 |
| 8. PUZZLES | 10 | 53.40 | 65.50 |
| TOTAL BATTERY | 217 | 56.06 | 66.46 |

| CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 82.92 | 86.14 | 5.03 | 3.22 |
| 47.45 | 50.59 | 9.11 | 3.14 |
| 53.00 | 61.25 | 16.25 | 8.25 |
| 58.20 | 61.71 | 12.43 | 3.51 |
| 74.00 | 80.91 | 16.09 | 6.91 |
| 76.80 | 83.90 | 10.40 | 7.10 |
| 48.22 | 53.94 | 14.17 | 5.72 |
| 59.40 | 67.10 | 12.10 | 7.70 |
| 60.59 | 64.83 | 10.40 | 4.24 |

2

| TEST - BODY PARTS<br><br>SUBTESTS | NUMBER OF ITEMS | EXPERIMENTAL | |
|---|---|---|---|
| | | $\bar{X}$<br>PRETEST | $\bar{X}$<br>6 WEEK |
| 1. POINTING | 10 | 8.99 | 9.34 |
| 2. LABELING | 20 | 15.88 | 16.82 |
| 3. FUNCTION (PICTURES) | 8 | 6.84 | 7.37 |
| 4. FUNCTION (NO PICTURES) | 4 | 3.31 | 3.60 |
| TOTAL TEST | 42 | 35.01 | 37.12 |

| CONTROL | | MEAN DIFFERENCE 6 WEEK - PRETEST | |
|---|---|---|---|
| $\bar{X}$ PRETEST | $\bar{X}$ 6 WEEK | EXPER. | CONTROL |
| 9.09 | 9.27 | 0.35 | 0.18 |
| 15.88 | 16.42 | 0.94 | 0.54 |
| 6.61 | 7.06 | 0.53 | 0.45 |
| 3.26 | 3.42 | 0.29 | 0.16 |
| 34.83 | 36.18 | 2.11 | 1.35 |

3

TEST - BODY PARTS

SUBTEST - POINTING

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS ASKED TO POINT TO VARIOUS PARTS OF HIS BODY | 1. LEG |
| | 2. KNEE |
| | 3. ARM |
| | 4. NECK |
| | 5. ELBOW |
| | 6. THUMB |
| | 7. LIP |
| | 8. HEAD |
| | 9. STOMACH |
| | 10. HEEL |
| | TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 99 | 100 | 100 | 98 | 1 | -2 |
| 89 | 98 | 86 | 94 | 9 | 8 |
| 100 | 100 | 98 | 100 | 0 | 2 |
| 99 | 100 | 98 | 97 | 1 | -1 |
| 84 | 94 | 86 | 92 | 10 | 6 |
| 91 | 95 | 89 | 89 | 4 | 0 |
| 94 | 98 | 97 | 100 | 4 | 3 |
| 100 | 98 | 100 | 100 | -2 | 0 |
| 96 | 100 | 98 | 98 | 4 | 0 |
| 67 | 70 | 71 | 77 | 3 | 6 |
| 91.9 | 95.3 | 92.3 | 94.5 | 3.4 | 2.2 |

TEST - BODY PARTS

SUBTEST - LABELING

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS ASKED TO NAME VARIOUS PARTS OF THE BODY<br><br>(EXAMINER POINTS TO A PART ON HIS OWN BODY AND ASKS, "WHAT IS THIS CALLED?") | 11. NOSE<br>12. HAIR<br>13. TEETH<br>14. HAND<br>15. EAR<br>16. EYE<br>17. TONGUE<br>18. NECK<br>19. LEG<br>20. FINGER<br>21. ARM<br>22. FOOT<br>23. THUMB<br>24. KNEE<br>25. ELBOW |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 100 | 100 | 100 | 100 | 0 | 0 |
| 100 | 100 | 100 | 100 | 0 | 0 |
| 99 | 100 | 100 | 100 | 1 | 0 |
| 99 | 98 | 95 | 100 | -1 | 5 |
| 100 | 100 | 100 | 100 | 0 | 0 |
| 97 | 97 | 98 | 100 | 0 | 2 |
| 96 | 98 | 97 | 94 | 2 | -3 |
| 89 | 94 | 94 | 91 | 5 | -3 |
| 88 | 89 | 89 | 86 | 1 | -3 |
| 89 | 97 | 92 | 97 | 8 | 5 |
| 87 | 92 | 94 | 89 | 5 | -5 |
| 83 | 90 | 85 | 90 | 7 | 5 |
| 91 | 97 | 94 | 94 | 6 | 0 |
| 78 | 86 | 81 | 85 | 8 | 4 |
| 81 | 94 | 87 | 91 | 13 | 4 |
| | | | | | 5 |

TEST - BODY PARTS, CONT.

SUBTEST - LABELING

| | NAME & NUMBER OF ITEM |
|---|---|
| | 26. SHOULDER |
| | 27. FOREHEAD |
| | 28. WRIST |
| | 29. CHEEK |
| | 30. CHIN |
| | TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 72 | 70 | 74 | 91 | -2 | 17 |
| 33 | 29 | 23 | 33 | -4 | 10 |
| 21 | 38 | 19 | 35 | 17 | 16 |
| 71 | 87 | 65 | 76 | 16 | 11 |
| 78 | 88 | 77 | 83 | 10 | 6 |
| 82.60 | 87.20 | 83.20 | 86.75 | 4.6 | 3.55 |

6

TEST - BODY PARTS

SUBTEST - FUNCTION (PICTURES)

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| THE CHILD IS TOLD THE FUNCTION OF A BODY PART AND IS ASKED TO POINT TO A PICTURE OF THE APPROPRIATE BODY PART<br><br>(CHOICE OF FOUR) | 31. PET (HAND)<br>32. SMILE (MOUTH)<br>33. KICK A BALL (FOOT)<br>34. LOOK (EYE)<br>35. SMELL (NOSE)<br>36. HEAR (EAR)<br>37. WALK (LEG)<br>38. CHEW (TEETH)<br><br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 84 | 98 | 87 | 92 | 14 | 5 |
| 73 | 72 | 75 | 77 | -1 | 2 |
| 93 | 95 | 91 | 92 | 2 | 1 |
| 88 | 98 | 84 | 91 | 10 | 7 |
| 73 | 89 | 71 | 85 | 16 | 14 |
| 91 | 91 | 88 | 89 | 0 | 1 |
| 99 | 97 | 95 | 94 | -2 | -1 |
| 91 | 98 | 92 | 91 | 7 | -1 |
| 86.50 | 92.25 | 85.38 | 88.88 | 5.75 | 3.5 |

7

TEST - BODY PARTS

SUBTEST - FUNCTION (NO PICTURES)

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| THE CHILD IS TOLD THE FUNCTION OF A BODY PART AND IS ASKED TO <u>NAME</u> THE APPROPRIATE BODY PART<br><br>("WHAT DO WE _____ WITH?") | 39. SEE (EYES)<br><br>40. PICK THINGS UP (HAND)<br><br>41. LICK (TONGUE)<br><br>42. LISTEN (EAR)<br><br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 90 | 94 | 95 | 94 | 4 | -1 |
| 90 | 94 | 84 | 92 | 4 | 8 |
| 85 | 92 | 84 | 87 | 7 | 3 |
| 81 | 90 | 85 | 90 | 9 | 5 |
| 86.5 | 92.5 | 87.0 | 90.75 | 6.0 | 3.75 |

8

| TEST - LETTERS SUBTESTS | NUMBER OF ITEMS | EXPERIMENTAL | |
|---|---|---|---|
| | | $\bar{X}$ PRETEST | $\bar{X}$ 6 WEEK |
| 1. MATCHING | 12 | 10.65 | 11.43 |
| 2. DOMAIN OF LETTERS | 2 | 0.68 | 0.88 |
| 3. RECOGNIZING LETTERS | 8 | 3.56 | 4.62 |
| 4. NAMING CAPITAL LETTERS | 16 | 4.37 | 6.34 |
| 5. NAMING LOWER CASE LETTERS | 8 | 1.44 | 2.22 |
| 6. INITIAL SOUNDS | 4 | 1.16 | 1.47 |
| 7. LETTERS IN WORDS | 8 | 5.28 | 5.89 |
| 8. READING | 6 | 0.04 | 0.15 |
| TOTAL TEST | 64 | 27.18 | 33.01 |

| CONTROL | | MEAN DIFFERENCE 6 WEEK - PRETEST | |
|---|---|---|---|
| $\bar{X}$ PRETEST | $\bar{X}$ 6 WEEK | EXPER. | CONTROL |
| 10.94 | 11.35 | 0.78 | 0.41 |
| 0.82 | 0.77 | 0.20 | -0.05 |
| 3.83 | 4.27 | 1.06 | 0.41 |
| 5.52 | 6.34 | 1.97 | 0.82 |
| 1.70 | 2.14 | 0.78 | 0.44 |
| 1.81 | 1.44 | 0.31 | -0.37 |
| 5.60 | 5.93 | 0.61 | 0.33 |
| 0.15 | 0.17 | 0.11 | 0.02 |
| 30.37 | 32.38 | 5.83 | 2.62 |

9

TEST - LETTERS

SUBTEST - MATCHING

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PICTURE OF AN OBJECT, NUMBER, LETTER OR WORD AND IS ASKED TO FIND ANOTHER PICTURE JUST LIKE IT.<br><br>(CHOICE OF FOUR) | 1. ICE CREAM CONE<br>2. RECTANGLE<br>3. CIRCLE<br>4. TRIANGLE<br>5. R<br>6. D<br>7. W<br>8. N<br>9. 3<br>10. 2<br>11. 15<br>12. WHO<br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 95 | 98 | 98 | 100 | 3 | 2 |
| 93 | 100 | 94 | 98 | 7 | 4 |
| 97 | 98 | 98 | 100 | 1 | 2 |
| 85 | 94 | 94 | 98 | 9 | 4 |
| 99 | 100 | 95 | 98 | 1 | 3 |
| 97 | 100 | 97 | 98 | 3 | 1 |
| 89 | 95 | 91 | 91 | 6 | 0 |
| 88 | 98 | 89 | 95 | 10 | 6 |
| 96 | 100 | 97 | 98 | 4 | 1 |
| 99 | 100 | 97 | 98 | 1 | 1 |
| 82 | 97 | 83 | 95 | 15 | 12 |
| 53 | 68 | 62 | 62 | 15 | 0 |
| 89.42 | 95.67 | 91.25 | 94.25 | 6.25 | 3.0 |

10

TEST - LETTERS

SUBTEST - DOMAIN OF LETTERS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PAGE WITH EIGHT LETTERS ON IT AND IS ASKED: WHAT ARE THESE CALLED?" AND "ARE THEY USED TO READ OR ARE THEY USED TO COUNT?" | 13. WHAT ARE THESE CALLED?<br>14. READ OR COUNT<br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 29 | 52 | 40 | 39 | 23 | -1 |
| 49 | 48 | 53 | 49 | -1 | -4 |
| 39.0 | 50.0 | 46.5 | 44.0 | 11.0 | -2.5 |

11

TEST - LETTERS

SUBTEST - RECOGNIZING LETTERS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PAGE WITH 4 LETTERS ON IT AND IS ASKED TO POINT TO A PARTICULAR LETTER.<br><br>(EX. "POINT TO THE A") | 15. A<br>16. P<br>17. J<br>18. M<br>19. a<br>20. t<br>21. d<br>22. f<br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 69 | 73 | 67 | 65 | 4 | -2 |
| 55 | 62 | 55 | 56 | 7 | 1 |
| 43 | 74 | 52 | 58 | 31 | 6 |
| 43 | 54 | 48 | 58 | 11 | 10 |
| 39 | 52 | 33 | 37 | 13 | 4 |
| 41 | 65 | 55 | 65 | 24 | 10 |
| 35 | 39 | 35 | 38 | 4 | 3 |
| 36 | 45 | 45 | 51 | 9 | 6 |
| 45.13 | 58.0 | 48.75 | 53.50 | 12.87 | 4.75 |

12

TEST - LETTERS

SUBTEST - NAMING CAPITAL LETTERS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PAGE WITH FOUR CAPITAL LETTERS ON IT AND IS ASKED TO NAME EACH OF THE LETTERS IN TURN.<br><br>(EXAMINER POINTS TO EACH LETTER AND ASKS: "WHAT IS THIS CALLED?") | 23. A<br>24. F<br>25. P<br>26. D<br>27. S<br>28. C<br>29. W<br>30. H<br>51. O<br>52. R<br>53. B<br>54. E<br>55. I<br>56. G<br>57. Y<br>58. U<br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 58 | 68 | 74 | 64 | 10 | -10 |
| 31 | 36 | 38 | 46 | 5 | 8 |
| 30 | 44 | 39 | 50 | 14 | 11 |
| 37 | 42 | 38 | 41 | 5 | 3 |
| 31 | 37 | 46 | 51 | 6 | 5 |
| 31 | 44 | 50 | 48 | 13 | -2 |
| 26 | 52 | 31 | 34 | 26 | 3 |
| 25 | 34 | 36 | 39 | 9 | 3 |
| 54 | 73 | 48 | 62 | 19 | 14 |
| 31 | 41 | 29 | 48 | 10 | 19 |
| 46 | 54 | 55 | 57 | 8 | 2 |
| 25 | 43 | 47 | 51 | 18 | 4 |
| 25 | 28 | 38 | 36 | 3 | -2 |
| 27 | 32 | 35 | 34 | 5 | -1 |
| 24 | 32 | 29 | 37 | 8 | 8 |
| 19 | 26 | 27 | 35 | 7 | 8 |
| 32.50 | 42.88 | 41.25 | ~~61.08~~ 45.81 | 10.38 | ~~10.37~~ 4.56 13 |

TEST - LETTERS

SUBTEST - NAMING LOWER CASE LETTERS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PAGE WITH FOUR LOWER CASE LETTERS ON IT AND IS ASKED TO NAME EACH LETTER IN TURN.<br><br>(EXAMINER POINTS TO EACH LETTER AND ASKS: "WHAT IS THIS CALLED?") | 39. b<br>40. r<br>41. i<br>42. y<br>43. m<br>44. e<br>45. t<br>46. g<br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 26 | 32 | 19 | 22 | 6 | 3 |
| 13 | 19 | 19 | 22 | 6 | 3 |
| 38 | 44 | 47 | 53 | 6 | 6 |
| 19 | 26 | 24 | 31 | 7 | 7 |
| 22 | 38 | 33 | 37 | 16 | 4 |
| 23 | 32 | 34 | 43 | 9 | 9 |
| 29 | 45 | 30 | 34 | 16 | 4 |
| 3 | 12 | 4 | 16 | 9 | 12 |
| 21.63 | 31.00 | 26.25 | 32.25 | 9.37 | 6.00 |

14

LETTERS TEST

| SUBTESTS | NUMBER OF ITEMS |
|---|---|
| NAMING CAPITAL LETTERS | TAUGHT ( 11 )<br>NOT TAUGHT (5 ) |
| NAMING LOWER CASE LETTERS | TAUGHT ( 4 )<br>NOT TAUGHT ( 4 ) |
| TOTAL | TAUGHT ( 15 )<br>NOT TAUGHT ( 9 ) |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 30.39 | 44.44 | 37.75 | 42.37 | 14.05 | 4.58 |
| 20.50 | 29.80 | 27.25 | 33.60 | 9.30 | 6.34 |
| 16.97 | 27.65 | 19.53 | 24.55 | 10.68 | 5.02 |
| 18.95 | 27.65 | 21.55 | 28.73 | 8.70 | 7.18 |
| 26.15 | 39.96 | 33.28 | 37.62 | 13. 81 | 4.34 |
| 19.81 | 28.84 | 24.72 | 31.43 | 7.03 | 6.71 |

14a

TEST - LETTERS

SUBTEST - INITIAL SOUNDS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PAGE WITH FOUR PICTURES ON IT.<br><br>EXAMINER SAYS: "HERE ARE SOME PICTURES. THIS IS SOCK, TABLE, CAR, RING (CAT, PENCIL, BALL, APPLE). WHICH ONE STARTS WITH T (C, A, P)?" | 47. T - TABLE<br><br>48. C - CAR<br><br>49. A - APPLE<br><br>50. P - PENCIL<br><br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETSST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROI |
| 26 | 36 | 22 | 41 | 10 | 19 |
| 17 | 28 | 28 | 27 | 11 | -1 |
| 47 | 52 | 40 | 45 | 5 | 5 |
| 29 | 31 | 31 | 34 | 2 | 3 |
| 29.75 | 36.75 | 30.25 | 36.75 | 7.000 | 6.5( |

15

TEST - LETTERS

SUBTEST - LETTERS IN WORDS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| 31 - 34:<br>CHILD IS SHOWN A PAGE WITH ONE LETTER ON IT AND ANOTHER PAGE WITH THREE WORDS ON IT.<br><br>EXAMINER POINTS TO LETTER AND SAYS:<br><br>"THIS IS A 'D'. NOW LOOK AT THESE (WORDS). FIND THE ONE WITH 'D'" (a, C, i).<br><br>35 - 38:<br>CHILD IS JUST SHOWN PAGE WITH THREE WORDS ON IT. EXAMINER SAYS:<br><br>"SHOW ME THE ONE WITH 'S'" (T, b, n). | 31. D IN DOG<br>32. a IN act<br>33. C IN ACT<br>34. i IN kin<br>35. S IN SIP<br>36. T IN NET<br>37. b IN bugs<br>38. n IN cone<br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 97 | 95 | 94 | 95 | -2 | 1 |
| 91 | 95 | 94 | 95 | 4 | 1 |
| 92 | 97 | 97 | 98 | 5 | 1 |
| 92 | 100 | 91 | 98 | 8 | 7 |
| 52 | 59 | 60 | 71 | 7 | 11 |
| 47 | 65 | 56 | 65 | 18 | 9 |
| 35 | 48 | 43 | 42 | 13 | -1 |
| 31 | 36 | 34 | 39 | 5 | 5 |
| 67.13 | 74.38 | 71.13 | 75.38 | 7.250 | 4.250 |

16

TEST - LETTERS

SUBTEST - READING

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PAGE WITH ONE WORD ON IT AND IS ASKED:<br><br>"WHAT DOES THIS SAY?" | 59. DOG<br>60. HAT<br>61. egg<br>62. STREET<br>63. judge<br>64. MAIL<br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 6 | 11 | 7 | 12 | 5 | 5 |
| 0 | 6 | 7 | 3 | 6 | -4 |
| 0 | 4 | 2 | 3 | 4 | 1 |
| 0 | 0 | 2 | 5 | 0 | 3 |
| 0 | 0 | 3 | 3 | 0 | 0 |
| 0 | 0 | 2 | 3 | 0 | 1 |
| 1.00 | 3.50 | 3.8 | 4.8 | 2.50 | 1.00 |

17

TEST - LETTERS

SUBTEST - RECITATION OF THE ALPHABET

| DESCRIPTION OF ITEM | SITES |
|---|---|
| EXAMINER SAYS:<br>" YOU KNOW THE ABCS.<br>SAY THEM FOR ME. "<br>IF THE CHILD MAKES NO<br>RESPONSE THE EXAMINER<br>SAYS:<br>" A..B.. WHAT COMES NEXT?"<br><br>FOR SCORING PURPOSES THE<br>LETTERS OF THE ALPHABET<br>ARE NUMBERED FROM 1 TO 26 | MAINE<br><br>TENNESSEE<br><br>NEW YORK<br><br>$\bar{X}$ LETTER REACHED<br>OVER THREE SITES |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN $\bar{X}$ LETTER REACHED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| $\bar{X}$ LETTER REACHED PRETEST | $\bar{X}$ LETTER REACHED 6 WEEK | $\bar{X}$ LETTER REACHED PRETEST | $\bar{X}$ LETTER REACHED 6 WEEK | EXPER. | CONTROL |
| 9.50 | 15.76 | 10.79 | 12.73 | 6.26 | 1.94 |
| 8.00 | 14.05 | 8.95 | 10.48 | 6.05 | 1.53 |
| 5.70 | 7.23 | 4.45 | 6.68 | 1.53 | 2.23 |
| 7.73 | 12.35 | 8.06 | 9.96 | 4.61 | 1.90 |

17a

| TEST - FORMS<br>SUBTESTS | NUMBER OF ITEMS | EXPERIMENTAL | |
|---|---|---|---|
| | | $\bar{X}$<br>PRETEST | $\bar{X}$<br>6 WEEK |
| 1. RECOGNIZING FORMS | 4 | 2.24 | 2.52 |
| 2. LABELING FORMS | 4 | 1.83 | 2.85 |
| TOTAL TEST | 8 | 4.07 | 5.37 |

| CONTROL | | MEAN DIFFERENCE 6 WEEK - PRETEST | |
|---|---|---|---|
| $\bar{X}$ PRETEST | $\bar{X}$ 6 WEEK | EXPER. | CONTROL |
| 2.15 | 2.45 | 0.28 | 0.30 |
| 2.09 | 2.45 | 1.02 | 0.36 |
| 4.24 | 4.90 | 1.30 | 0.66 |

18

TEST - FORMS

SUBTEST - RECOGNIZING FORMS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PAGE WITH FOUR GEOMETRIC FORMS ON IT AND IS ASKED TO POINT TO THE FORM NAMED BY THE EXAMINER.<br><br>(EX. "WHICH ONE IS THE CIRCLE?") | 1. CIRCLE<br>2. RECTANGLE<br>3. TRIANGLE<br>4. TRIANGLE<br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 93 | 100 | 95 | 100 | 7 | 5 |
| 31 | 55 | 30 | 45 | 24 | 15 |
| 85 | 94 | 88 | 91 | 9 | 3 |
| -- | -- | -- | -- | -- | -- |
| 69.67 | 83.00 | 71.00 | 78.67 | 13.33 | 7.67 |

19

TEST - FORMS

SUBTEST - LABELING FORMS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PAGE WITH FOUR GEOMETRIC FORMS ON IT AND IS ASKED TO NAME THEM.<br><br>(EXAMINER POINTS TO EACH FORM AND ASKS: "WHAT IS THIS CALLED?") | 5. SQUARE<br>6. RECTANGLE<br>7. CIRCLE<br>8. TRIANGLE<br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 56 | 87 | 60 | 76 | 31 | 16 |
| 12 | 43 | 20 | 36 | 31 | 16 |
| 68 | 81 | 72 | 75 | 13 | 3 |
| 52 | 82 | 66 | 75 | 30 | 9 |
| 47.00 | 73.25 | 54.50 | 65.50 | 26.25 | 11.00 |

20

| TEST - NUMBERS<br>SUBTESTS | NUMBER OF ITEMS | EXPERIMENTAL | |
|---|---|---|---|
| | | $\bar{X}$<br>PRETEST | $\bar{X}$<br>6 WEEK |
| 1. RECOGNIZING DOMAIN OF NUMBERS | 2 | 1.12 | 1.34 |
| 2. RECOGNIZING NUMERALS | 6 | 3.03 | 4.23 |
| 3. NAMING NUMERALS | 15 | 4.63 | 7.09 |
| 4. LADYBUGS (numerosity) | 8 | 4.65 | 5.32 |
| 5. CHECKERS (counting) (demonstrating amount) | 8 | 5.52 | 6.26 |
| 6. BIRDS (numerosity; addition) | 2 | 1.47 | 1.68 |
| 7. COOKIES (numerosity; subtraction) | 2 | 1.37 | 1.62 |
| 8. GENERAL QUESTIONS | 10 | 4.53 | 5.40 |
| TOTAL TEST | 53 | 26.32 | 32.91 |

| CONTROL | | MEAN DIFFERENCE 6 WEEK - PRETEST | |
|---|---|---|---|
| $\bar{X}$ PRETEST | $\bar{X}$ 6 WEEK | EXPER. | CONTROL |
| 1.23 | 1.45 | 0.22 | 0.22 |
| 4.02 | 4.15 | 1.20 | 0.13 |
| 6.06 | 6.79 | 2.46 | 0.73 |
| 4.94 | 5.29 | 0.67 | 0.35 |
| 5.92 | 6.32 | 0.74 | 0.40 |
| 1.64 | 1.64 | 0.21 | 0.00 |
| 1.61 | 1.52 | 0.25 | -0.09 |
| 5.44 | 5.56 | 0.87 | 0.12 |
| 30.85 | 32.71 | 6.59 | 1.86 |

21

TEST - NUMBERS

SUBTEST - RECOGNIZING DOMAIN OF LETTERS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PAGE WITH EIGHT NUMBERS ON IT AND IS ASKED:<br><br>"WHAT ARE THESE CALLED?"<br><br>AND<br><br>"ARE THEY USED TO COUNT OR TO READ?" | 1. WHAT ARE THESE CALLED?<br><br>2. COUNT OR READ<br><br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 48 | 69 | 53 | 75 | 21 | 22 |
| 69 | 81 | 84 | 83 | 12 | -1 |
| 58.50 | 75.00 | 68.50 | 79.00 | 16.50 | 10.50 |

22

TEST - NUMBERS

SUBTEST - RECOGNIZING NUMERALS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PAGE WITH FOUR NUMBERS ON IT AND IS ASKED TO POINT TO A PARTICULAR NUMBER.<br><br>(Ex. "Point to the 4") | 3. 1<br>4. 4<br>5. 10<br>6. 2<br>7. 6<br>8. 20<br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 69 | 91 | 78 | 85 | 22 | 7 |
| 58 | 78 | 70 | 80 | 20 | 10 |
| 53 | 82 | 74 | 79 | 29 | 5 |
| 52 | 71 | 80 | 71 | 19 | -9 |
| 43 | 63 | 60 | 57 | 20 | -3 |
| 30 | 39 | 42 | 44 | 9 | 2 |
| 50.83 | 70.67 | 67.33 | 69.33 | 19.83 | 2.00( |

23

TEST - NUMBERS

SUBTEST - NAMING NUMERALS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PAGE WITH FOUR NUMBERS ON IT AND IS ASKED TO NAME EACH OF THE NUMBERS IN TURN.<br><br>(EXAMINER POINTS TO EACH NUMBER AND ASKS: "WHAT IS THIS CALLED?") | 9. 4<br>10. 7<br>11. 1<br>12. 8<br>13. 3<br>14. 5<br>15. 2<br>16. 10<br>17. 6<br>18. 0<br>19. 9<br>20. 11<br>21. 17<br>22. 20<br>23. 12<br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | %PASSED 6 WEEK | EXPER. | CONTROL |
| 59 | 81 | 68 | 73 | 22 | 5 |
| 34 | 49 | 41 | 51 | 15 | 10 |
| 69 | 84 | 78 | 80 | 15 | 2 |
| 39 | 55 | 38 | 47 | 16 | 9 |
| 51 | 72 | 66 | 73 | 21 | 7 |
| 49 | 73 | 65 | 69 | 24 | 4 |
| 48 | 68 | 75 | 74 | 20 | -1 |
| 28 | 57 | 42 | 42 | 29 | 0 |
| 31 | 58 | 47 | 53 | 27 | 6 |
| 30 | 48 | 40 | 47 | 18 | 7 |
| 22 | 40 | 35 | 37 | 18 | 2 |
| 16 | 24 | 33 | 30 | 8 | -3 |
| 9 | 12 | 17 | 15 | 3 | -2 |
| 12 | 15 | 18 | 19 | 3 | 1 |
| 14 | 9 | 15 | 11 | -5 | -4 |
| 34.07 | 49.67 | 45.20 | 48.07 | 15.60 | 2.87 |

24

TEST - NUMBERS

SUBTEST - LADYBUGS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN PAGES WITH BOXES OF VARIOUS NUMBERS OF LADYBUGS AND IS ASKED TO POINT TO THE BOX THAT HAS:<br><br>24. ONE LADYBUG<br>25. MORE LADYBUGS<br>26. TWO LADYBUGS<br>ETC. | 24. ONE<br>25. MORE<br>26. TWO<br>27. FEWER<br>28. FIVE<br>29. FEWEST<br>30. MOST<br>31. SAME<br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 92 | 100 | 94 | 100 | 8 | 6 |
| 96 | 98 | 97 | 98 | 2 | 1 |
| 93 | 100 | 94 | 98 | 7 | 4 |
| 15 | 11 | 14 | 12 | -4 | -2 |
| 76 | 87 | 81 | 82 | 11 | 1 |
| 14 | 14 | 20 | 14 | 0 | -6 |
| 42 | 62 | 45 | 59 | 20 | 14 |
| 43 | 66 | 57 | 70 | 23 | 13 |
| 58.88 | 67.25 | 62.75 | 65.41 | 8.47 | 3.87 |

25

TEST - NUMERALS

SUBTEST - CHECKERS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| A ROW OF 10 CHECKERS IS PLACED IN FRONT OF THE CHILD AND HE IS ASKED TO COUNT THEM.<br><br>THE EXAMINER THEN GATHERS THE CHECKERS TOGETHER IN A PILE AND ASKS:<br><br>"NOW HOW MANY CHECKERS ARE THERE?"<br><br>NEXT THE EXAMINER ASKS THE CHILD TO TAKE OR GIVE VARIOUS NUMBERS OF CHECKERS (EACH TIME RETURNING ALL THE CHECKERS TO THE PILE.)<br><br>FOR THE LAST TWO ITEMS THE EXAMINER BUILDS A STACK OF CHECKERS AND A CLUSTER OF CHECKERS IN FRONT OF THE CHILD AND ASKS, "WHICH HAS MORE?" | 32. COUNTING CHECKERS<br>33. NUMBER OF CHECKERS (WITHOUT COUNTING)<br>34. TAKE 4<br>35. TAKE 2<br>36. GIVE ME 6<br>37. TAKE ALL<br>38. GIVE SOME<br>39. WHICH HAS MORE (4 or 5)<br>40. WHICH HAS MORE (4 or 3)<br><br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| -- | -- | -- | -- | -- | -- |
| 41 | 48 | 45 | 53 | 7 | 8 |
| 66 | 77 | 73 | 76 | 11 | 3 |
| 88 | 95 | 92 | 91 | 7 | -1 |
| 43 | 59 | 52 | 70 | 16 | 18 |
| 96 | 98 | 97 | 98 | 2 | 1 |
| 89 | 92 | 92 | 88 | 3 | -4 |
| 74 | 87 | 77 | 83 | 13 | 6 |
| 64 | 77 | 72 | 78 | 13 | 6 |
| 70.13 | 79.13 | 75.00 | 79.63 | 9.0 | 4.63 |

TEST - NUMBERS

SUBTEST - CHECKERS

| DESCRIPTION OF ITEM | SITES |
|---|---|
| 10 CHECKERS ARE PLACED IN A ROW IN FRONT OF THE CHILD. THE EXAMINER SAYS : " HERE ARE SOME CHECKERS. HOW MANY CHECKERS ARE THERE ? COUNT THEM FOR ME." | MAINE<br>TENNESSEE<br>NEW YORK<br>TOTAL OVER SITES |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| .63 | .72 | .75 | .73 | .09 | -.02 |
| .68 | .68 | .71 | .81 | .00 | .10 |
| .55 | .71 | .50 | .74 | .16 | .24 |
| 1.86 | 2.11 | 1.96 | 2.28 | .25 | .32 |

TEST - NUMBERS

SUBTEST - BIRDS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PAGE WITH THREE BIRDS ON IT AND IS ASKED: "HOW MANY BIRDS ARE THERE?" | 41. HOW MANY (3)? |
| AND | 42. THREE BIRDS PLUS ONE MORE |
| "IF I PUT ONE MORE BIRD ON THE PAGE, HOW MANY WOULD THERE BE?" | TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROI |
| 92 | 95 | 92 | 92 | 3 | 0 |
| 59 | 75 | 74 | 75 | 16 | 1 |
| 75.50 | 85.00 | 83.00 | 83.50 | 9.50 | 0.50 |

TEST - NUMBERS

SUBTEST - COOKIES

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PAGE WITH FOUR COOKIES ON IT AND IS ASKED: "HOW MANY COOKIES ARE THERE?" | 43. HOW MANY (4)? |
| AND | 44. FOUR COOKIES MINUS ONE |
| "IF A LITTLE BOY ATE ONE OF THE COOKIES, HOW MANY WOULD BE LEFT?" | TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTRO |
| 77 | 88 | 87 | 82 | 11 | -5 |
| 64 | 76 | 77 | 71 | 12 | -6 |
| 70.50 | 82.00 | 82.00 | 76.50 | 11.50 | -5.50 |

TEST - NUMBERS

SUBTEST - GENERAL QUESTIONS

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS ASKED A SERIES OF QUESTIONS | 45. HOW MANY HANDS DO YOU HAVE? |
| | 46. HOW MANY EARS DO YOU HAVE? |
| | 47. HOW MANY HEADS DO YOU HAVE? |
| | 48. HOW MANY FINGERS DO YOU HAVE? |
| | 49. HOW MANY FEET DO YOU HAVE? |
| | 50. IF I CUT AN APPLE IN HALF, HOW MANY PIECES WILL THERE BE? |
| | 51. HOW MUCH IS 2 AND 1? |
| | 52. HOW MUCH IS 5 AND 3? |
| | 53. HOW MUCH IS 3-1? |
| | 54. HOW MUCH IS 2 x 2? |
| | TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRESTEST | % PASSED 6 WEEK | EXPER. | CONTRO |
| 71 | 84 | 78 | 86 | 13 | 8 |
| 89 | 95 | 98 | 95 | 6 | -3 |
| 87 | 97 | 92 | 95 | 10 | 3 |
| 34 | 43 | 45 | 49 | 9 | 4 |
| 83 | 97 | 91 | 91 | 14 | 0 |
| 58 | 79 | 75 | 75 | 21 | 0 |
| 25 | 39 | 42 | 44 | 14 | 2 |
| 5 | 4 | 11 | 10 | -1 | -1 |
| 19 | 12 | 18 | 20 | -7 | 2 |
| 11 | 20 | 22 | 27 | 9 | 5 |
| 48.20 | 57.00 | 57.20 | 59.20 | 8.80 | 2.00 |

TEST - NUMBERS

SUBTEST - COUNTING

| DESCRIPTION OF ITEM | SITES |
|---|---|
| EXAMINER SAYS :<br>" COUNT FOR ME. HOW FAR CAN YOU COUNT?"<br>IF CHILD MAKES NO RESPONSE<br>EXAMINER SAYS :<br>" ONE..TWO.. WHAT COMES NEXT ?" | MAINE<br>TENNESSEE<br>NEW YORK<br>$\bar{X}$ NUMBER REACHED OVER THREE SITES |

| EXPERIMENTAL | | CONTROL | | $\bar{X}$ DIFFERENCE IN NUMBER REACHED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| $\bar{X}$ NUMBER REACHED PRETEST | $\bar{X}$ NUMBER REACHED 6 WEEK. | $\bar{X}$ NUMBER REACHED PRETEST | $\bar{X}$ NUMBER REACHED 6 WEEK | EXPER. | CONTROL |
| 12.27 | 13.90 | 13.82 | 15.81 | 1.63 | 1.99 |
| 14.68 | 16.11 | 15.05 | 14.86 | 1.43 | -.19 |
| 9.20 | 11.25 | 11.20 | 10.26 | 2.05 | -.94 |
| 12.05 | 13.75 | 13.36 | 13.64 | 1.70 | -.29 |

| TEST - SORTING<br>SUBTESTS | NUMBER OF ITEMS | EXPERIMENTAL | |
|---|---|---|---|
| | | $\bar{X}$<br>PRETEST | $\bar{X}$<br>6 WEEK |
| 1. SORTING | 6 | 2.88 | 4.51 |
| 2. COMPLETION | 6 | 5.45 | 5.75 |
| TOTAL TEST | 12 | 8.33 | 10.26 |

| CONTROL | | MEAN DIFFERENCE 6 WEEK - PRETEST | |
|---|---|---|---|
| $\bar{X}$ PRETEST | $\bar{X}$ 6 WEEK | EXPER. | CONTROL |
| 3.56 | 4.09 | 1.63 | 0.53 |
| 5.32 | 5.62 | 0.30 | 0.30 |
| 8.83 | 9.71 | 1.93 | 0.83 |

30

TEST - SORTING

SUBTEST - SORTING

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PAGE WITH FOUR OBJECTS ON IT AND IS ASKED TO POINT TO THE ONE OBJECT THAT DOES NOT BELONG WITH THE OTHERS | 1. CIRCLE<br>2. BABY SPOON<br>3. TWO SHOES<br>4. THREE HORNS<br>5. BABY HAT<br>6. FROG<br>TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 74 | 98 | 88 | 89 | 24 | 1 |
| 41 | 58 | 47 | 64 | 17 | 17 |
| 44 | 80 | 52 | 53 | 36 | 1 |
| 43 | 63 | 48 | 57 | 20 | 9 |
| 32 | 75 | 57 | 68 | 43 | 11 |
| 60 | 75 | 68 | 82 | 15 | 14 |
| 49.00 | 74.83 | 60.00 | 68.83 | 25.83 | 8.8 |

31

TEST - SORTING

SUBTEST - COMPLETION

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS ASKED A SERIES OF QUESTIONS | 7. YOU WEAR SHOES<br>YOU WEAR _____<br>WHAT ELSE DO YOU WEAR? |
| | 8. YOU EAT BREAD<br>YOU EAT CHICKEN<br>WHAT ELSE DO YOU EAT? |
| | 9. PEOPLE RIDE IN A TRAIN<br>PEOPLE RIDE IN A BUS<br>WHAT ELSE DO PEOPLE RIDE IN? |
| | 10. A BALLOON IS ROUND<br>AN ORANGE IS ROUND<br>WHAT ELSE IS ROUND |
| | 11. A COW IS AN ANIMAL<br>A DOG IS AN ANIMAL<br>WHAT ELSE IS AN ANIMAL |
| | 12. YOU HAVE TWO EARS AND TWO FEET<br>WHAT ELSE DO YOU HAVE TWO OF? |
| | TOTAL SUBTEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 100 | 100 | 98 | 100 | 0 | 2 |
| 100 | 100 | 97 | 100 | 0 | 3 |
| 95 | 100 | 95 | 98 | 5 | 3 |
| 81 | 94 | 81 | 82 | 13 | 1 |
| 93 | 100 | 95 | 97 | 7 | 2 |
| 94 | 97 | 93 | 98 | 3 | 5 |
| 93.83 | 98.50 | 93.17 | 95.83 | 4.67 | 2.67 |

32

| TEST - RELATIONS<br>NO SUBTESTS | NUMBER OF ITEMS | EXPERIMENTAL | |
|---|---|---|---|
| | | $\bar{X}$<br>PRETEST | $\bar{X}$<br>6 WEEK |
| TOTAL TEST | 10 | 7.24 | 8.28 |

| CONTROL | | MEAN DIFFERENCE 6 WEEK - PRETEST | |
|---|---|---|---|
| $\bar{X}$ PRETEST | $\bar{X}$ 6 WEEK | $\bar{X}$ EXPER. | $\bar{X}$ CONTROL |
| 7.68 | 8.39 | 1.04 | 0.71 |

33

TEST - RELATIONS

( NO SUBTESTS)

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN PICTURES OF ANIMALS (4 BEARS, 4 BIRDS, 4 DOGS, ETC.) AND IS ASKED TO POINT TO: | 1. BIGGEST |
| | 2. SMALLEST |
| | 3. OVER |
| "THE BIGGEST BEAR" | 4. NEAREST |
| "THE BIRD NEAREST THE CAGE" | 5. THROUGH |
| "THE DOG ON THE FENCE" | 6. ON |
| ETC. | 7. IN |
| | 8. UNDER |
| | 9. BETWEEN |
| | 10. AROUND |
| | TOTAL TEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 99 | 100 | 98 | 98 | 1 | 0 |
| 85 | 95 | 91 | 89 | 10 | -2 |
| 66 | 91 | 74 | 94 | 25 | 20 |
| 62 | 78 | 73 | 73 | 16 | 0 |
| 70 | 63 | 68 | 71 | -7 | 3 |
| 95 | 97 | 97 | 95 | 2 | -2 |
| 74 | 79 | 75 | 86 | 5 | 11 |
| 73 | 79 | 71 | 88 | 6 | 17 |
| 43 | 59 | 42 | 53 | 16 | 11 |
| 65 | 94 | 82 | 92 | 29 | 10 |
| 73.20 | 83.50 | 77.10 | 83.90 | 10.30 | 6.80 |

34

| TEST - CLASSIFICATION<br>NO SUBTESTS | NUMBER OF ITEMS | EXPERIMENTAL | |
|---|---|---|---|
| | | $\bar{X}$<br>PRETEST | $\bar{X}$<br>6 WEEK |
| TOTAL TEST | 18 | 8.16 | 10.71 |

| CONTROL | | MEAN DIFFERENCE 6 WEEK - PRETEST | |
|---|---|---|---|
| $\bar{X}$ PRETEST | $\bar{X}$ 6 WEEK | EXPER. | CONTROL |
| 8.68 | 9.71 | 2.55 | 1.03 |

35

TEST - CLASSIFICATION

(NO SUBTESTS)

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| CHILD IS SHOWN A PICTURE OF THREE OBJECTS THAT HAVE A COMMON ATTRIBUTE AND IS ASKED TO CHOOSE ANOTHER OBJECT (FROM A PAGE WITH FOUR OBJECTS ON IT) THAT BELONGS WITH THE FIRST THREE.<br><br>ON SEVERAL OF THE ITEMS, IF THE CHILD HAS ANSWERED THE ITEM CORRECTLY, HE IS ASKED TO EXPLAIN WHY HE MADE HIS CHOICE. | 1. FRUIT<br>2. SQUARES<br>3. BIG BUTTONS<br>4. SMALL ANIMALS<br>5. TWO FISH<br>6. WHY?<br>7. THREE OBJECTS<br>8. WHY?<br>9. TWO OBJECTS<br>10. RECTANGULAR OBJECTS<br>11. WHY?<br>12. ROUND OBJECTS<br>13, WHY?<br>14. PLANTS<br>15. VEHICLES |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 73 | 94 | 82 | 87 | 21 | 5 |
| 85 | 98 | 83 | 94 | 13 | 11 |
| 85 | 100 | 82 | 92 | 15 | 10 |
| 61 | 82 | 67 | 81 | 21 | 14 |
| 59 | 86 | 64 | 78 | 27 | 14 |
| -- | -- | -- | -- | -- | -- |
| 53 | 62 | 47 | 67 | 9 | 20 |
| -- | -- | -- | -- | -- | -- |
| 35 | 49 | 36 | 45 | 14 | 9 |
| 51 | 74 | 50 | 66 | 23 | 16 |
| -- | -- | -- | -- | -- | -- |
| 65 | 89 | 65 | 84 | 24 | 19 |
| -- | -- | -- | -- | -- | -- |
| 57 | 80 | 56 | 75 | 23 | 19 |
| 86 | 97 | 94 | 92 | 11 | -2 |

36

TEST - CLASSIFICATION, CONT.

( NO SUBTESTS)

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| | 16. CLOTHES |
| | 17. WHY? |
| | 18. SMALL SHOES |
| | TOTAL TEST |
| | ( ONLY 13 ITEMS WERE TOTALED) |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 64 | 86 | 85 | 83 | 22 | -2 |
| -- | -- | -- | -- | -- | -- |
| 49 | 75 | 60 | 63 | 26 | 3 |
| 63.31 | 82.46 | 67.00 | 77.46 | 19.15 | 10.46 |

37

| TEST - PUZZLES<br>NO SUBTESTS | NUMBER OF ITEMS | EXPERIMENTAL | |
|---|---|---|---|
| | | $\bar{X}$<br>PRETEST | $\bar{X}$<br>6 WEEK |
| TOTAL TEST | 10 | 5.34 | 6.55 |

| CONTROL | | MEAN DIFFERENCE 6 WEEK - PRETEST | |
|---|---|---|---|
| $\bar{X}$ PRETEST | $\bar{X}$ 6 WEEK | EXPER. | CONTROL |
| 5.94 | 6.71 | 1.21 | 0.77 |

38

TEST - PUZZLES

(NO SUBTESTS)

| DESCRIPTION OF ITEMS | NAME & NUMBER OF ITEM |
|---|---|
| 1 - 5:<br>CHILD IS SHOWN A PAGE WITH 4 PICTURES ON IT AND IS ASKED TO POINT TO THE PICTURE THAT IS FUNNY OR HAS SOMETHING WRONG WITH IT.<br><br>6 - 10:<br>CHILD IS SHOWN A PICTURE AND IS ASKED:<br><br>"WHAT IS MISSING HERE?"<br><br>OR<br><br>"WHAT IS WRONG HERE?" | 1. TABLE WITH 3 LEGS<br>2. DOG AT A TABLE<br>3. CAR WITH SQUARE WHEELS<br>4. CHICKEN WITH 1 LEG<br>5. T.V. WITH TRIANGULAR SCREEN<br>6. EAR ON CAT<br>7. WIRE ON TELEPHONE<br>8. HAMMERING NAIL WITH BALLOON<br>9. AIRPLANE ON TRAIN TRACKS<br>10. DOOR ON HOUSE<br><br>TOTAL TEST |

| EXPERIMENTAL | | CONTROL | | DIFFERENCE IN % PASSED 6 WEEK - PRETEST | |
|---|---|---|---|---|---|
| % PASSED PRETEST | % PASSED 6 WEEK | % PASSED PRETEST | % PASSED 6 WEEK | EXPER. | CONTROL |
| 58 | 72 | 64 | 75 | 14 | 11 |
| 48 | 65 | 50 | 62 | 17 | 12 |
| 68 | 85 | 82 | 84 | 17 | 2 |
| 35 | 37 | 41 | 46 | 2 | 5 |
| 72 | 84 | 70 | 77 | 12 | 7 |
| 63 | 83 | 66 | 86 | 20 | 20 |
| 35 | 40 | 53 | 61 | 5 | 8 |
| 73 | 76 | 71 | 72 | 3 | 1 |
| 82 | 89 | 92 | 79 | 7 | -13 |
| 35 | 48 | 42 | 68 | 13 | 26 |
| 56.90 | 67.90 | 63.10 | 71.00 | 11.00 | 7.90 |

39

## TEST SITES ANALYSIS

In order to assess the equivalence of our three test sites, Maine, Tennessee and New York, the Peabody Picture Vocabulary Test was administered to all the children at the time of the Pretest. It was found that the Tennessee subjects had a significantly higher I.Q. than the Maine and New York samples. There was no significant difference between Maine and New York in the I.Q. Test.

An analysis was also made to assess any significant difference in I.Q. that might have occurred in the random assignment of children to experimental and control groups. Statistically there is no significant difference between the viewers and non-viewers in the I.Q. Te t.

Most of our analysis to date has been grouping the data from the three sites. A preliminary look at site difference was taken by Dr. Jack Miller and his staff at Nashville, Tennessee where our computer analysis is being done. The following tables were sent to C.T.W. by them. The tables present in graphic form the mean item data for each of the eight major tests. The top graph on each page is the three sites pooled, showing experimental vs control group; the botton graph on each page is the same data but it reflects the experimental vs. control group at each of the three sites.

In looking at the bottom graphs, it can be noted that the gains made by the experimental group when the data is pooled are reflected at every one of the three test sites, when that site is isolated.

| LETTERS TEST | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| Matching | | | | | | | |
| 1. Cone | | | | | | | |
| 2. Rectangle | | | | 1 | 2 | | |
| 3. Circle | | | | | 2 | 1 | |
| 4. Triangle | | | | 1 | | | 1 |
| 5. R | | | | | | | |
| 6. D | | | | | | | |
| 7. W | 7 | | | 4 | 4 | | |
| 8. N | | | | | | | |
| 9. 3 | | 3 | 1 | 2 | 1 | | |
| 10. 2 | 4 | 1 | 3 | 2 | 1 | | |
| 11. IS | | | | | | | |
| 12. WHO | | | | | | | |
| 13. What Are These Called | | | | | | | |
| 14. Used in reading or counting | | | | | | | |
| Recognizing Letters | | | | | | | |
| 15. A | | | | | | 5 | 2 |

SHOWS

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | T 1-15 |
|---|---|---|---|---|---|---|---|---|
| | 1 | | | | 1 | | | 5 |
| | 1 | | | | | | | 4 |
| | 2 | | | | 1 | | 2 | 7 |
| | | | 2 | 1 | | 4 | 1 | 8 |
| | 2 | | | | | | | 17 |
| | | | | | | | | 7 |
| | | | | | | | | 11 |
| 3 | | 2 | | | | | | 12 |

| LETTERS TEST | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| Matching 1. Cone | | | | | | | |
| 2. Rectangle | | 2 | 1 | | | 1 | |
| 3. Circle | | | | | | 1 | |
| 4. Triangle | | | 1 | | | 2 | |
| 5. R | | | | | 3 | | |
| 6. D | 2 | 2 | 1 | 1 | | | |
| 7. W | | | | | | | |
| 8. N | | | | | | | |
| 9. 3 | | | | | | | |
| 10. 2 | | | | | | | |
| 11. IS | | | | | | | |
| 12. who | | | | | | | |
| 13. called "letters" | | | | | | | |
| 14. used in reading | | | | | | | |

SHOWS

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | T 16-30 | T 1-30 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| 3 | | | 1 | | | | | 8 | 13 |
| | | 2 | | | | | | 3 | 7 |
| | | | 1 | | | | | 4 | 7 |
| | | | | | | | | 3 | 11 |
| | | 6 | | | | | | 12 | 12 |
| | | | | | | | | 0 | 17 |
| | | | | | | | | | 0 |
| | | | 2 | | | | | 2 | 9 |
| | | | 3 | | | | | 3 | 14 |
| | | | | | | | | | 0 |
| | | | | | | | | | 0 |
| | | | | | | | | | 0 |
| | | | | | | | | | 0 |
| | | | | | | | | | |

| LETTERS TEST (CONT.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| 16. P | | | | | | | |
| 17. J | | | | | | | |
| 18. M | | | | | | | |
| 19. a | | | | | | 2 | 2 |
| 20. t | | | | | | | |
| 21. d | | | | | | | |
| 22. f | | | | | | | |
| Naming Letters | | | | | | | |
| 23. A | | | | | | 5 | 2 |
| 24. F | | | | | | | |
| 25. P | | | | | | | |
| 26. D | | | | | | | |
| 27. S | 1 | | 6 | 4 | | | |
| 28. C | | | | | | | |
| 29. W | 7 | | | 4 | 4 | | |
| 30. H | | | | | | | |
| Letters in words | | | | | | | |
| 31. D | | | | | | | |

SHOWS

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | T 1-15 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | 2 | | 1 | 6 | | 1 | 1 | 11 |
| | | | | | | | | |
| 2 | | 1 | | | | | | 7 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 3 | | 2 | | | | | | 12 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | 2 | | | | | | | 13 |
| | | | | | | | | |
| | | | | | | | | |
| | 2 | | | | | | | 17 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| LETTERS / TEST | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| Recognizing 15. A | | | | | | 3 | 2 |
| 16. P | | | | | | | |
| 17. J | | | | | | | |
| 18. M | 2 | 3 | 2 | | | | |
| 19. a | | | | | | 2 | 1 |
| 20. t | | | | | | | |
| 21. d | 2 | 2 | | | | | |
| 22. f | | | | | | | |
| Naming Letters 23. A | | | | | | 3 | 1 |
| 24. F | | | | | | | |
| 25. P | | | | | | | |
| 26. D | 1 | 1 | 1 | 1 | | | |
| 27. S | | | | | | | |
| 28. C | | | | | | | |
| 29. W | | | | | | | |
| 30. H | | | | | 4 | 1 | 5 |

SHOWS

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | T 16-30 | T 1-30 |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 2 | | | | | | | 11 | 27 |
| | | | | | | | | | 0 |
| | | | | | | | | 0 | 11 |
| | | | | | | | | 7 | 7 |
| 2 | 1 | | | | | | | 6 | 13 |
| | 2 | | | | | 1 | | 3 | 3 |
| | | 2 | | | | | | 6 | 6 |
| | | | | | | | | | 0 |
| 3 | 2 | | | | | | | 9 | 21 |
| | | | | | | | | | 0 |
| | | | | | | | | | 0 |
| | | 6 | | | | | | 10 | 10 |
| | | | | | | | | | 13 |
| | | | | | | 4 | | 4 | 4 |
| | | | | | | | | | 17 |
| 1 | 2 | 6 | | | | 5 | | 24 | 24 |

| LETTERS TEST (CONT.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| 32. d | | | | | | | |
| 33. C | | | | | | | |
| 34. i | | | | | | | |
| 35. S | 1 | | 6 | 4 | | | |
| 36. T | | | | | | | |
| 37. b | | | | | | 2 | 1 |
| 38. n | | | | | | | |
| Naming Letters | | | | | | | |
| 39. b | | | | | | 2 | 1 |
| 40. r | | | | | | | |
| 41. i | | | | | | | |
| 42. y | | | | | | | |
| 43. m | | | | | | | |
| 44. e | 1 | 5 | | 2 | 3 | | |
| 45. t | | | | | | | |
| 46. q | | | | | | | |

SHOWS

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | T 1-15 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | 2 | | | | | | | 13 |
| | | | | | | | | |
| 1 | | 1 | | | 2 | | | 7 |
| | | | | | | | | |
| 1 | | 1 | | | 2 | | | 7 |
| | | | 1 | 1 | | 2 | | 4 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | 2 | | | 2 |
| | | | | | | | | 11 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| LETTERS / TEST | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| Letters in words 31. D | 1 | 1 | 1 | 1 | | | |
| 32. d | | | | | | | |
| 33. C | | | | | | | |
| 34. i | | | | | | | |
| 35. S | | | | | | | |
| 36. T | | | | | 1 | 2 | 2 |
| 37. b | | | | | | | |
| 38. n | | | | | | | |
| Naming Letters 39. b | | | | | | | |
| 40. r | | | | | 2 | | |
| 41. i | | | | | | | |
| 42. y | | | | | | | |
| 43. m | 1 | 1 | 2 | 2 | | | |
| 44. e | 2 | 2 | 1 | 3 | | | |
| 45. t | | | | | | | |

SHOWS

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | T 16-30 | T 1-30 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 4 | |
| | | | | | | | | | |
| | | | | | | 4 | | 4 | |
| | | | | | | | | | |
| | | | | | | | | | 13 |
| 3 | 9 | | | | | 5 | | 22 | 22 |
| | | | | | | | | | 7 |
| | | | | | | | | | 0 |
| | | | | | | | | | 7 |
| | | | | | | | | 2 | 4 |
| | | | | | | | | | 0 |
| | | | | | | | | | 0 |
| | | | | | | | | 6 | 8 |
| | | | | | | | | 8 | 19 |
| | 2 | | | | | 1 | | 3 | 3 |

| LETTERS TEST (CONT.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| Begins With | | | | | | | |
| 47. t (table) | | | | | | | |
| 48. c (car) | | | | | | | |
| 49. a (apple) | | | | | | 2 | 2 |
| 50. p (pencil) | | | | | | | |
| Naming Letters | | | | | | | |
| 51. O | | | | | | | |
| 52. R | | | | | | | |
| 53. B | | | | | | 2 | 1 |
| 54. E | 1 | 3 | 2 | 2 | 2 | | |
| 55. I | | | | | | | |
| 56. G | | | | | | | |
| 57. Y | | | | | | | |
| 58. U | | | | | | | |
| Words | | | | | | | |
| 59. DOG | | | | | | | |
| 60. HAT | | | | | | | |

SHOWS

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | T 1-15 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| 2 | | 1 | | | | | | 7 |
| | | | | | | | | |
| | | | | | | | | |
| | | | 4 | 2 | | 2 | 6 | 13 |
| | | | | 1 | | 4 | 1 | 6 |
| 5 | | 1 | | | 3 | | | 12 |
| | | | | | | | | 10 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| LETTERS / TEST | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| 46. g | | | | | | | |
| Begins with 47. t | | | | | 1 | 2 | 2 |
| 48. c | | | | | | | |
| 49. a | | | | | | 2 | 1 |
| 50. p | | | | | | | |
| Naming Letters 51. O | | | | | | | |
| 52. R | | | | | 2 | | |
| 53. B | | | | 1 | | | |
| 54. E | 2 | 2 | 1 | 3 | | | |
| 55. I | | | | | | | |
| 56. G | | | | | | | |
| 57. Y | | | | | | | |
| 58. U | | | | | | | |
| Words 59. DOG | | | | | | | |

SHOWS

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | T 16-30 | T 1-30 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| 3 | 9 | | | | | 5 | | 22 | 22 |
| | | | | | | 3 | | 3 | 3 |
| 3 | 1 | | | | | | | 7 | 14 |
| | | | | | | | | | |
| | | | 4 | 1 | 3 | | 3 | 11 | 24 |
| | | | | | | | | 2 | 8 |
| | | | | | | | | 1 | 13 |
| | | | | | | | | 8 | 18 |
| | | | | | | | | | 0 |
| | | 1 | 1 | 1 | 1 | | 1 | 5 | 5 |
| | | | | | | | | | 0 |
| | | | | | | | | | 0 |
| | | | | | | | | | 0 |

| LETTERS TEST (CONT.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| 61. egg | | 1 | | | 1 | | |
| 62. STREET | | | | | | | |
| 63. judge | | | | | | | |
| 64. MAIL | | | | | | | |
| 65. abc's | | | 1 | | 1 | 1 | 1 |
| 66. Writing Name | | | | | | | |

| SHOWS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | T 1-15 |
| | | | | | | | | 2 |
| | 2 | | | 2 | | 1 | 1 | 6 |
| | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 12 |

| LETTERS / TEST / ITEMS | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|
| 60. HAT | | | | | | | |
| 61. egg | 1 | | | 2 | | | |
| 62. STREET | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 63. judge | | | | | | | |
| 64. MAIL | | 2 | 1 | | | | |
| 65. ABC's | 1 | 1 | 1 | 3 | | 1 | |
| 66. name writing | | | | | | | |

SHOWS

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | T 16-30 | T 1-30 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 0 |
| | | | | | | | | 3 | 6 |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 30 | 60 |
| | | | | | | | | | |
| | | | | | | | | 3 | 3 |
| 1 | | | 1 | 1 | 3 | 2 | | 15 | 27 |
| | | | | | | | | | 0 |

| FORMS / TEST | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| Which is a ... | | | | | | | |
| 1. Circle | | | | | 2 | 1 | |
| 2. Rectangle | | | | 1 | 2 | | |
| 3. Triangle | | | | 1 | | | 1 |
| 4. Triangle | | | | 1 | | | 1 |
| What is this? | | | | | | | |
| 5. Square | | | | 1 | | | |
| 6. Rectangle | | | | 1 | 2 | | |
| 7. Circle | | | | | 2 | 1 | |
| 8. Triangle | | | | 1 | | | 1 |

SHOWS

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | T 1-15 |
|---|---|---|---|---|---|---|---|---|
| | 1 | | | | | | | 4 |
| | 1 | | | | 1 | | | 5 |
| | 2 | | | | 1 | | 2 | 7 |
| | 2 | | | | 1 | | 2 | 7 |
| | 1 | | | | 1 | | | 5 |
| | 1 | | | | 1 | | | 5 |
| | 1 | | | | | | | 4 |
| | 2 | | | | 1 | | 2 | 7 |

| FORMS TEST | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| ITEMS | | | | | | | |
| Which is a... 1. Circle | | | | | | 1 | |
| 2. Rectangle | | 2 | 1 | | | 1 | |
| 3. Triangle | | | 1 | | | 2 | |
| 4. Triangle | | | 1 | | | 2 | |
| What is this? 5. Square | | | | | | 2 | |
| 6. Rectangle | | 2 | 1 | | | 1 | |
| 7. Circle | | | | | | 1 | |
| 8. Triangle | | | 1 | | | 2 | |

SHOWS

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | T 16-30 | T 1-30 |
|---|---|---|---|---|---|---|---|---|---|
| | | 2 | | | | | | 3 | 7 |
| 3 | | | 1 | | | | | 8 | 13 |
| | | | 1 | | | | | 4 | 11 |
| | | | 1 | | | | | 4 | 11 |
| | | 1 | | | | | | 3 | 8 |
| 3 | | | 1 | | | | | 8 | 13 |
| | | 2 | | | | | | 3 | 7 |
| | | | 1 | | | | | 4 | 11 |

| NUMBERS / TEST | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| 1. Name | | | | | | | |
| 2. Count | | | | | | | |
| Recognizing | | | | | | | |
| 3. (1) | | | | | | | |
| 4. (4) | | | | | | 4 | 1 |
| 5. (2) | 4 | 1 | 3 | 2 | 1 | | |
| 6. (10) | | | | | | | |
| 7. (6) | | | | | | | |
| 8. (20) | | | | | | | |
| Naming | | | | | | | |
| 9. (4) | | | | | | 4 | 1 |
| 10. (7) | | | | | | | |
| 11. (1) | | | | | | | |
| 12. (8) | | | | | | | |
| 13. (3) | | 3 | 1 | 2 | 1 | | |
| 14. (5) | | | | | | 1 | 4 |
| 15. (2) | 4 | 1 | 3 | 2 | 1 | | |

SHOWS

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | T 1-15 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 2 | 5 | 1 | | | | | | 13 |
| | | | | | | | | 11 |
| | | | | | | | | |
| | | | 1 | 1 | 4 | 2 | 2 | 10 |
| | | | | | | | | |
| | | | | | | | | |
| 2 | 5 | 1 | | | | | | 13 |
| | | | 1 | 2 | 1 | 1 | 3 | 8 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | 7 |
| 4 | 3 | 3 | | | | | | 15 |
| | | | | | | | | 11 |
| | | | | | | | | |

| NUMBERS TEST | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| 1. What Are These Called | | | | | | | |
| 2. Are they Used to Count or Read | | | | | | | |
| Recognizing Which | | | | | | | |
| 3. is 1 | | | | | | | |
| 4. " 4 | | | | | | | |
| 5. " 2 | | | | | | | |
| 6. " 10 | | | | | | 1 | 3 |
| 7. " 6 | | | | | | | |
| 8. " 20 | | | | | | | |
| Naming What is this | | | | | | | |
| 9. 4 | | | | | | | |
| 10. 7 | | | | | | | |
| 11. 1 | | | | | | | |
| 12. 8 | 2 | 6 | | 3 | 1 | | |

SHOWS

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | T 16-30 | T 1-30 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | 1 | | | |
| | | | | | | | | | |
| | | | | 3 | | | | 3 | 16 |
| | | | 3 | | | | | 3 | 14 |
| 1 | 1 | 2 | | | | | 3 | 11 | 11 |
| | | | | | 4 | | | 4 | 14 |
| | | | | | | | | | |
| | | | | 3 | | | | 3 | 16 |
| | | | | | 2 | | | 2 | 10 |
| | | | | | | | | | |
| | | | | | | 2 | | 14 | 14 |

| NUMBERS TEST (CONT.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| 16. (10) | | | | | | | |
| 17. (6) | | | | | | | |
| 18. (0) | | | | | | | |
| 19. (9) | | | | | | | |
| 20. (11) | | | | | | | |
| 21. (17) | | | | | | | |
| 22. (20) | | | | | | | |
| 23. (12) | | | | | | | |
| LADYBUGS Which box has _____? | | | | | | | |
| 24. (1) | | | | | | | |
| 25. More | | | | | | | |
| 26. (2) | 5 | 1 | 2 | 2 | 1 | | |
| 27. Fewer | | | | | | | |
| 28. (5) | | | | | | 1 | 4 |
| 29. Fewest | | | | | | | |
| 30. Most | | | | | | | |
| | | | | | | | |

SHOWS

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | T 1-15 |
|---|---|---|---|---|---|---|---|---|
| | | | 1 | 1 | 4 | 2 | 2 | 10 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | 11 |
| | | | | | | | | |
| 4 | 3 | 3 | | | | | | 15 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| NUMBERS TEST (CONT.) | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| What is this<br>13. 3 | | | | | | | |
| 14. 5 | | | | | | | |
| 15. 2 | | | | | | | |
| 16. 10 | | | | | | 1 | 3 |
| 17. 6 | | | | | | | |
| 18. 0 | | | | | | | |
| 19. 9 | | 1 | 2 | 1 | 3 | | |
| 20. 11 | | | | | | | |
| 21. 17 | | | | | | | |
| 22. 20 | | | | | | | |
| 23. 12 | | | | | | | |
| Ladybugs<br>Which box has ____?<br>24. 1 | | | | | | | |
| 25. More | | | | | | | |
| 26. 2 | | | | | | | |
| 27. Fewer | | | | | | | |
| 28. 5 | | | | | | | |

SNOWS

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | T 16-30 | T 1-30 |
|---|---|---|---|---|---|---|---|---|---|
| | | | 2 | | | | | 2 | 9 |
| | | | | | | | | | 15 |
| | | | 2 | | | | | 2 | 13 |
| 1 | 1 | 2 | | | | | 3 | 11 | 11 |
| | | | | | 4 | | | 4 | 14 |
| | | | | | | | | | |
| | | | | | | 2 | | 9 | 9 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | 1 | | | | 1 | 1 |
| | | | 3 | | | | | 3 | 14 |
| | | | | | | | | | |
| | | | | | | | | 0 | 15 |
| | | | | | | | | | |

| NUMBERS TEST (CONT.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| 31. Same | | 1 | | | | | |
| 32. (10) | | | 1 | | | | |
| 33. How Many | | | | | | | |
| 34. Take 4 | | | | | | 5 | 1 |
| 35. Take 2 | 5 | 1 | 2 | 2 | 1 | | |
| 36. Give 6 | | | | | | | |
| 37. Take All | | | | | | | |
| 38. Give Some | | | | | | | |
| 39. Stack 5 Cluster 4 | | | | | | | |
| 40. Stack 3 Cluster 4 | | | | | | | |
| Birds | | | | | | | |
| 41. Count 3 | 1 | 3 | 1 | 2 | 1 | | |
| 42. Add 1 | | | | | | | |
| Cookies | | | | | | | |
| 43. Count 4 | | | | | | 5 | 1 |
| 44. Take 1 Away | | | | | | | |
| 45. Count Hands 2 | 5 | 1 | | | | | |

SHOWS

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | T 1-15 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 1 |
| | | 2 | | | | 1 | | 4 |
| | | | | | | | | |
| 3 | 5 | 1 | | | | | | 15 |
| | | | | | | | | 11 |
| | | | | 1 | 4 | 2 | 2 | 9 |
| | | | | | | | | |
| | 1 | | | | | | | 1 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | 8 |
| | | | | | | | | |
| | | | | | | | | |
| 4 | 7 | 1 | | | | | | 18 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | 6 |
| | | | | | | | | |

| NUMBERS TEST (CONT.) | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| 29. Fewest | | | | | | | |
| 30. Most | | | | | | | |
| 31. Same | | | 2 | | | | |
| 32. How Many Checkers | | | | | | 1 | 3 |
| 33. Now how Many(10 Clustered) | | | | | | | |
| 34. Take 4 | | | | | | | |
| 35. Take 2 | | | | | | | |
| 36. Give 6 | | | | | | | |
| 37. Take All | | | | | | | |
| 38. Give Some | | | | | | | |
| 39. Stack 5 Cluster 4 | | | | | | | |
| 40. Stack 3 Cluster 4 | | | | | | | |
| Birds | | | | | | | |
| 41. Count 3 | | | | | | | |
| 42. Add 1 | | | | | | | |
| Cookies | | | | | | | |
| 43. How Many (4) | | | | | | | |

SHOWS

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | T 16-30 | T 1-30 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | 2 | 3 |
| 3 | 1 | 2 | | | | | 2 | 12 | 16 |
| | | | | | | | | | |
| | | | | 4 | | | | 4 | 19 |
| | | | 3 | | | | | 3 | 14 |
| | | | | | 4 | | | 4 | 13 |
| | | | | | | | | | |
| | | | | | | | | | 1 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | 2 | | | | | 2 | 10 |
| | | | | | | | | | |
| | | | | 3 | | | | 3 | 21 |

| NUMBERS TEST (CONT.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| 46. Count Ears 2 | 5 | 1 | | | | | |
| 47. Count Head 1 | | | | | | | |
| 48. Count Fingers | | | | | | | |
| 49. Count Feet 2 | 5 | 1 | | | | | |
| 50. Cut Apple in Half 2 | | | | | | | |
| 51. Add 2+1 | | | | | | | |
| 52. Add 5+3 | | | | | | | |
| 53. Subtract 3-1 | | | | | | | |
| 54. 2x2 | | | | | | | |
| 55. Count 1 - 20 | 2 | 5 | 3 | 4 | 3 | 4 | 4 |

| SHOWS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | T 1-15 |
| | | | | | | | | 6 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | 6 |
| | | | | | 1 | | | 1 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 6 | 9 | 6 | 7 | 5 | 6 | 5 | 6 | 75 |

| NUMBERS TEST (CONT. | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| 44. Take 1 Away | | | | | | | |
| 45. Count Hands | | | | | | | |
| 46. Count Ears | | | | | | | |
| 47. Count Heads | | | | | | | |
| 48. Count Fingers | | | | | | | |
| 49. Count Feet | | | | | | | |
| 50. Cut Apple in Half | | | | | | | |
| 51. 2+1 | | | | | | | |
| 52. 5+3 | | | | | | | |
| 53. 3-1 | | | | | | | |
| 54. 2x2 | | | | | | | |
| 55. Count 1 - 20 | 5 | 8 | 2 | 8 | 6 | 2 | 5 |

SHOWS

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | T 16-30 | T 1-30 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | 2 | | | | | 2 | 8 |
| | | | 3 | | | | | 3 | 9 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | 3 | | | | | 3 | 9 |
| | | | | | | | | | 1 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 3 | 1 | 2 | 3 | 3 | 5 | 4 | 4 | 61 | 136 |

| RELATIONS TEST | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| ITEMS | | | | | | | |
| 1. BIGGEST | | | 2 | | | | |
| 2. SMALLEST | | | | | | | |
| 3. OVER | 2 | | | | | 1 | |
| 4. NEAREST | | | | | 1 | | |
| 5. THROUGH | 2 | | | | | 1 | |
| 6. ON | | | | | | | |
| 7. IN | | | | | | | |
| 8. UNDER | | | | | | | |
| 9. BETWEEN | | | | | | | |
| 10. AROUND | 2 | | | | | 1 | |

SHOWS

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | T 1-15 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1 | 3 |
| | | | | | | | | 0 |
| | | | | 2 | | | | 5 |
| | | | 3 | | | | | 4 |
| | | | | 2 | | | | 5 |
| | | | | | | | | 0 |
| | | | | | | | | 0 |
| | | | | | | | | 0 |
| | | | | | | | | 0 |
| | | | | 2 | | | | 5 |

| RELATIONS TEST | | | | | | | |
|---|---|---|---|---|---|---|---|
| ITEMS | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 1. BIGGEST | | | | | | | |
| 2. SMALLEST | | | | | | | |
| 3. OVER | | | | | | | |
| 4. NEAREST | | | | | | | |
| 5. THROUGH | | | | | | | 2 |
| 6. ON | | | | | 1 | | |
| 7. IN | | | | | 1 | | |
| 8. UNDER | | | | | | | |
| 9. BETWEEN | | | | | | | |
| 10. AROUND | | | | | | | |

SHOWS

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | T 16-30 | T 1-30 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 0 | 3 |
| | | | | | | | | 0 | 0 |
| 2 | | | | | | 2 | | 4 | 9 |
| | | | | | | | 1 | 1 | 5 |
| 2 | | | | | | 2 | | 6 | 11 |
| | | | | | | | | 1 | 1 |
| | | | | | | | | 1 | 0 |
| | | | | | | | | 0 | 0 |
| | | | | | | | | 0 | 5 |
| 2 | | | | | | 2 | | 4 | 9 |

APPENDIX — Distribution of PPVT-IQ Scores for site, group and experimental treatment.

MEAN PEABODY PICTURE VOCABULARY TEST (PPVT) IQ SCORES FOR THREE CTW TEST SITES (MAINE, TENNESSEE AND NEW YORK).

| Site | N | Mean PPVT-IQ |
|---|---|---|
| Maine | 86 | 96.4 |
| Tennessee | 65 | 102.1 |
| New York | 60 | 95.2 |

MEAN PPVT-IQ SCORES FOR EXPERIMENTAL AND CONTROL GROUPS

| Treatment | N | Mean PPVT-IQ |
|---|---|---|
| Experimental | 110 | 97.5 |
| Control | 101 | 98.3 |
| Exp. + Con. | 211 | 97.9 |

ANALYSIS OF VARIANCE OF MEAN PPVT-IQ SCORES BY TREATMENT AND TEST SITE (Three test sites and six subgroups).

| Site | F-ratio | Probability |
|---|---|---|
| Maine | 0.62 | 0.69 |
| Tennessee | 0.77 | 0.58 |
| New York | 0.22 | 0.95 |

ANALYSIS OF VARIANCE OF PPVT-IQ SCORES BY CTW TESTING SITES

| Source of Variance | d.f. | Mean Squares | F |
|---|---|---|---|
| Between | 2 | 912.875 | 3.55* |
| Within | 208 | 256.871 | |

*F= 3.55 (p = 0.0294)

SUB-ANALYSIS OF OVERALL PPVT-IQ SCORES AMONG THREE TEST SITES

| Comparison | Mean difference | t |
|---|---|---|
| Tenn/New York | 6.99 | 2.44* |
| Tenn/Maine | 5.79 | 2.20* |
| Maine/New York | 1.20 | 0.45 |

* $p > .05$ ($t_{.05}$ with df=120 = $\pm$ 1.96; $t_{.01}$= $\pm$ 2.58)

MEANS, STANDARD DEVIATIONS AND CRONBACH ALPHA COEFFICIENTS FOR EACH TEST AND SUBTEST FOR EXPERIMENTAL AND CONTROL GROUPS

BODY PARTS TEST

PRETEST: EXPERIMENTAL GROUPS 1 & 2 (N = 75)

| Scale | No. of items | Mean | Sigma | Alpha |
|---|---|---|---|---|
| 1 | 10 | 8.986 | 1.280 | 0.5938 |
| 2 | 20 | 15.880 | 2.961 | 0.7793 |
| 3 | 8 | 6.840 | 1.514 | 0.6800 |
| 4 | 4 | 3.306 | 1.057 | 0.6620 |
| Total | 42 | 35.013 | 5.538 | 0.8730 |

PRETEST: CONTROL GROUPS 1 & 2 (N = 66)

| | | | |
|---|---|---|---|
| 1 | 9.090 | 1.137 | 0.5181 |
| 2 | 15.878 | 2.889 | 0.7909 |
| 3 | 6.606 | 2.058 | 0.8469 |
| 4 | 3.257 | 1.184 | 0.7673 |
| Total | 34.833 | 6.248 | 0.9074 |

SIX WEEKS TEST: EXPERIMENTAL GROUPS 1 & 2 (N = 65)

| | | | |
|---|---|---|---|
| 1 | 9.338 | 0.899 | 0.4761 |
| 2 | 16.815 | 1.999 | 0.5980 |
| 3 | 7.369 | 0.985 | 0.5218 |
| 4 | 3.600 | 0.973 | 0.8278 |
| Total | 37.123 | 3.669 | 0.7903 |

SIX WEEKS TEST: CONTROL GROUPS 1 & 2 (N = 66)

| | | | |
|---|---|---|---|
| 1 | 9.272 | 1.187 | 0.6376 |
| 2 | 16.424 | 2.850 | 0.7926 |
| 3 | 7.060 | 1.774 | 0.8524 |
| 4 | 3.424 | 1.168 | 0.8603 |
| Total | 36.181 | 5.954 | 0.9119 |

LETTERS TEST

PRETEST: EXPERIMENTAL GROUPS 1 & 2 (N = 75)

| Scale | No. of Items | Mean | Sigma | Alpha |
|---|---|---|---|---|
| 1 | 12 | 10.653 | 1.465 | 0.5760 |
| 2 | 2 | 0.680 | 0.733 | 0.4761 |
| 3 | 8 | 3.560 | 1.856 | 0.5176 |
| 4 | 16 | 4.373 | 4.692 | 0.9205 |
| 5 | 8 | 1.440 | 1.768 | 0.7339 |
| 6 | 4 | 1.160 | 0.712 | -0.6993 |
| 7 | 8 | 5.280 | 1.352 | 0.3980 |
| 8 | 6 | 0.040 | 0.195 | -0.0000 |
| Total | 64 | 27.186 | 9.711 | 0.9141 |

PRETEST: CONTROL GROUPS 1 & 2 (N = 66)

| | | | |
|---|---|---|---|
| 1 | 10.954 | 1.618 | 0.7404 |
| 2 | 0.818 | 0.776 | 0.4718 |
| 3 | 3.833 | 2.085 | 0.6419 |
| 4 | 5.530 | 5.141 | 0.9284 |
| 5 | 1.696 | 1.984 | 0.7792 |
| 6 | 1.181 | 0.919 | 0.0477 |
| 7 | 5.606 | 1.265 | 0.3045 |
| 8 | 0.151 | 0.783 | 0.9134 |
| Total | 29.772 | 11.091 | 0.9330 |

DATA IS NOT YET AVAILABLE ON SIGMA AND ALPHA COEFFICIENTS FOR THE LETTERS TEST AT SIX WEEKS.

FORMS TEST

PRETEST: EXPERIMENTAL GROUPS 1 & 2 (N=75)

| Scale | No. of items | Mean | Sigma | Alpha |
|---|---|---|---|---|
| 1 | 4 | 2.240 | 1.105 | 0.4999 |
| 2 | 4 | 1.826 | 1.215 | 0.6013 |
| Total | 8 | 4.066 | 1.871 | 0.6289 |

PRETEST: CONTROL GROUPS 1 & 2 (N=66)

| | | | | |
|---|---|---|---|---|
| 1 | 4 | 2.151 | 1.033 | 0.4396 |
| 2 | 4 | 2.090 | 1.345 | 0.7167 |
| Total | 8 | 4.242 | 2.082 | 0.7335 |

SIX WEEKS TEST: EXPERIMENTAL GROUPS 1 & 2 (N=65)

| | | | | |
|---|---|---|---|---|
| 1 | 4 | 2.523 | 1.151 | 0.6029 |
| 2 | 4 | 2.846 | 1.026 | 0.4620 |
| Total | 8 | 5.369 | 1.723 | 0.5986 |

SIX WEEKS TEST: CONTROL GROUPS 1 & 2 (N=66)

| | | | | |
|---|---|---|---|---|
| 1 | 4 | 2.454 | 1.061 | 0.4618 |
| 2 | 4 | 2.454 | 1.304 | 0.6734 |
| Total | 8 | 4.909 | 1.912 | 0.6495 |

NUMBERS TEST

PRETEST: EXPERIMENTAL GROUPS 1 & 2 (N=75)

| Scale | No. of items | Mean | Sigma | Alpha |
|---|---|---|---|---|
| 1 | 2 | 1.120 | 0.782 | 0.5063 |
| 2 | 6 | 3.026 | 1.657 | 0.5845 |
| 3 | 15 | 4.626 | 4.273 | 0.9073 |
| 4 | 8 | 4.653 | 1.227 | 0.3080 |
| 5 | 8 | 5.520 | 1.864 | 0.6808 |
| 6 | 2 | 1.466 | 0.639 | 0.3808 |
| 7 | 2 | 1.373 | 0.761 | 0.5425 |
| 8 | 10 | 4.533 | 2.186 | 0.7645 |
| Total | 53 | 26.320 | 10.196 | 0.9269 |

PRETEST: CONTROL GROUPS 1 & 2 (N=66)

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 1.227 | 0.713 | 0.3752 |
| 2 | 6 | 4.015 | 1.482 | 0.5337 |
| 3 | 15 | 6.060 | 4.588 | 0.9199 |
| 4 | 8 | 4.939 | 1.358 | 0.4727 |
| 5 | 8 | 5.924 | 1.893 | 0.7380 |
| 6 | 2 | 1.636 | 0.642 | 0.6400 |
| 7 | 2 | 1.606 | 0.671 | 0.6150 |
| 8 | 10 | 5.439 | 1.875 | 0.6717 |
| Total | 53 | 30.848 | 9.695 | 0.9222 |

SIX WEEKS TEST: EXPERIMENTAL GROUPS 1 & 2 (N=65)

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 1.338 | 0.770 | 0.5746 |
| 2 | 6 | 4.230 | 1.526 | 0.6442 |
| 3 | 15 | 7.092 | 4.190 | 0.8941 |
| 4 | 8 | 5.323 | 1.229 | 0.5037 |
| 5 | 8 | 6.261 | 1.694 | 0.6900 |
| 6 | 2 | 1.676 | 0.557 | 0.4292 |
| 7 | 2 | 1.615 | 0.624 | 0.4581 |
| 8 | 10 | 5.369 | 1.687 | 0.6405 |
| Total | 53 | 32.907 | 9.056 | 0.9180 |

SIX WEEKS TEST: CONTROL GROUPS 1 & 2 (N=66)

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 1.454 | 0.742 | 0.6200 |
| 2 | 6 | 4.151 | 1.836 | 0.7900 |
| 3 | 15 | 6.787 | 4.653 | 0.9246 |
| 4 | 8 | 5.287 | 1.164 | 0.4069 |
| 5 | 8 | 6.318 | 1.851 | 0.7492 |
| 6 | 2 | 1.636 | 0.593 | 0.4062 |
| 7 | 2 | 1.515 | 0.722 | 0.6221 |
| 8 | 10 | 5.560 | 1.741 | 0.6042 |
| Total | 53 | 32.712 | 10.955 | 0.9463 |

RELATIONS TEST

PRETEST: EXPERIMENTAL GROUPS 1 & 2 (N=75)

| Scale | No. of items | Mean | Sigma | Alpha |
|---|---|---|---|---|
| 1 | 10 | 7.240 | 1.965 | 0.6053 |

PRETEST: CONTROL GROUPS 1 & 2 (N=66)

| | | | | |
|---|---|---|---|---|
| 1 | 10 | 7.681 | 1.843 | 0.6067 |

SIX WEEKS TEST: EXPERIMENTAL GROUPS 1 & 2 (N=65)

| | | | | |
|---|---|---|---|---|
| 1 | 10 | 8.276 | 1.503 | 0.5036 |

SIX WEEKS TEST: CONTROL GROUPS 1 & 2 (N=66)

| | | | | |
|---|---|---|---|---|
| 1 | 10 | 8.393 | 1.622 | 0.6181 |

SORTING SKILLS TEST

PRETEST: EXPERIMENTAL GROUPS 1 & 2 (N=75)

| Scale | No. of items | Mean | Sigma | Alpha |
|---|---|---|---|---|
| 1 | 6 | 2.880 | 1.394 | 0.3489 |
| 2 | 6 | 5.453 | 0.771 | 0.2856 |
| Total | 12 | 8.333 | 1.776 | 0.4572 |

PRETEST: CONTROL GROUPS 1 & 2 (N=66)

| | | | | |
|---|---|---|---|---|
| 1 | 6 | 3.560 | 1.498 | 0.4932 |
| 2 | 6 | 5.318 | 1.195 | 0.7147 |
| Total | 12 | 8.878 | 2.107 | 0.6238 |

SIX WEEKS TEST: EXPERIMENTAL GROUPS 1 & 2 (N=65)

| | | | | |
|---|---|---|---|---|
| 1 | 6 | 4.507 | 1.290 | 0.4635 |
| 2 | 6 | 5.753 | 0.582 | 0.4050 |
| Total | 12 | 10.261 | 1.511 | 0.4957 |

SIX WEEKS TEST: CONTROL GROUPS 1 & 2 (N=66)

| | | | | |
|---|---|---|---|---|
| 1 | 6 | 4.090 | 1.411 | 0.4771 |
| 2 | 6 | 5.621 | 0.773 | 0.5638 |
| Total | 12 | 9.712 | 1.815 | 0.5887 |

CLASSIFICATION SKILLS TEST

PRETEST: EXPERIMENTAL GROUPS 1 & 2 (N=75)

| Scale | No. of items | Mean | Sigma | Alpha |
|---|---|---|---|---|
| 1 | 18 | 8.160 | 2.713 | 0.6642 |

PRETEST: CONTROL GROUPS 1 & 2 (N=66)

| | | | | |
|---|---|---|---|---|
| 1 | 18 | 8.681 | 3.196 | 0.7939 |

SIX WEEKS TEST: EXPERIMENTAL GROUPS 1 & 2 (N=65)

| | | | | |
|---|---|---|---|---|
| 1 | 18 | 10.707 | 2.095 | 0.6699 |

SIX WEEKS TEST: CONTROL GROUPS 1 & 2 (N=66)

| | | | | |
|---|---|---|---|---|
| 1 | 18 | 9.712 | 3.489 | 0.8625 |

PUZZLES TEST

PRETEST: EXPERIMENTAL GROUPS 1 & 2 (N=75)

| Scale | No. of items | Mean | Sigma | Alpha |
|---|---|---|---|---|
| 1 | 10 | 5.346 | 2.206 | 0.6069 |

PRETEST: CONTROL GROUPS 1 & 2 (N=66)

| | | | | |
|---|---|---|---|---|
| 1 | 10 | 5.939 | 2.268 | 0.6386 |

SIX WEEKS TEST: EXPERIMENTAL GROUPS 1 & 2 (N=65)

| | | | | |
|---|---|---|---|---|
| 1 | 10 | 6.553 | 2.105 | 0.6338 |

SIX WEEKS TEST: CONTROL GROUPS 1 & 2 (N=66)

| | | | | |
|---|---|---|---|---|
| 1 | 10 | 6.712 | 2.603 | 0.7703 |

## IMPLICATIONS AND RECOMMENDATIONS FOR PRODUCTION ON THE BASIS OF THE SIX WEEKS TESTING RESULTS

### BODY PARTS

The data from the six-week testing indicate that the children in day-care centers are well able to identify and label the parts of the body. With the exception of forehead and wrist over 70% of the children in both experimental and control conditions responded correctly on all recognition and labelling items.

The same holds true for identifying the parts of the body associated with basic functions like looking, smelling, etc.

#### Implications

The high level of performance on this measure implies that the majority of children from three to five years of age are already familiar with the level of knowledge about their bodies that is tapped by this test. This is probably not true for the child from a disadvantaged area who has no preschool experience, however.

#### Recommendations

The gains made on items in the Body Parts Test which were not already at ceiling level on the Pretest are impressive. This indicates that for a child who is not already familiar with the body parts being tested, the methods used in the program were successful in raising his level of performance.

It is recommended, then, that the show continue to deal with the body parts goals as it has done in the past. Since the children are familiar with body parts, these could be used to teach other goals. For example, the child can be shown that his nose is between his ears, emphasizing the relational concept. Finger plays can also be used which stress relations and number concepts.

The similarities and differences between parts of the child's body can be compared to animals' bodies when they appear on the show. For example, the child has hair on his head while the animal may have fur all over its body; They both may have two eyes; The animal may walk on all fours while the child walks upright on two legs, etc.

The child could be taught more about his body. For example he can be shown how the skin, fingernails and eyelashes act to protect him. This can also be compared with animals who have fur to keep them warm, feathers that repel water, etc.

## LETTERS

The data from the Six Weeks Testing indicates that although much headway is being made in the child's knowledge of letters, there is still a great deal of room for growth. Because of the emphasis that is placed on the goals dealing with letters the subtests are discussed individually below.

### Matching

On this subtest the child was shown a card on which a shape, letter, number or form was printed. He was then required to find the identical stimulus from a set of four. Performance on this task was exceptionally high, over 90% correct at Six Week Testing, on all items with the exception of the word "WHO."

### Implications

These data imply that the children have a good understanding of this task and possess the skills necessary to perform successfully when a single stimulus is involved. Errors occur when the child is asked to match a stimulus that is made up of several elements, such as WHO which is comprised of the three elements W, H, and O.

### Recommendations

Since both experimental and control children were both able to match successfully when the match involved a unitary stimulus, it is suggested that less emphasis be placed on this skill. Rather the skills necessary to perform correctly on more complex matching problems should be stressed.

The problem seems to lie in the strategy that the child uses to complete the task. He should be taught that a systematic aprroach is possible to solving such a problem. The child is most probably concentrating his attention on only one element of the stimulus. In WHO, for example, he may only attend to the W. This could result in the child's matching WHO with WAR. In both words W is the first letter.

To correct this the child can be taught to make a systematic check of each letter. This skill can also be emphasized in the Sorting Game. The word that doesn't belong could have a different last letter such as:

| | |
|---|---|
| WHO | WHO |
| WHY | WHO |

Another method that could be used to teach children the strategy for matching would be to superimpose or matte the letters of the word to be matched over each of the possible choices. If this is done, the matte should proceed from left to right and each letter should be confirmed. This would result in a match-mismatch test. The important thing is for the child to realize that all of the letters must match that of the standard before he can conclude that they are the same.

## Defining the Domain of Letters

Children were asked two questions to determine their understanding of the domain of letters and their function. They were shown a page with eight printed letters and asked: (1) What are these called? The percentage of children in the experimental group answering this question correctly rose from 29% on Pretest to 52% after Six Weeks of viewing. The percentage of control subjects answering correctly stayed relatively stable at about 40% correct. (2) Are they used to read or are they used to count? There was virtually no change in performance from Pretest to Six Week Testing for either experimental or control children.

### Implications

These results indicate that although the children are becoming fairly familiar with individual letters such as "W" or "J" they do not understand what they are or how they are used. They do not realize that "W" is a letter and that it is used to make words. There has been some gain (about 23%) in recognizing that A,B, etc., are letters but after six weeks of programming only 52% of the viewers have discovered this fact. There is still a good deal of room for growth.

### Recommendations

When the alphabet in its entirety or individual characters from the alphabet are presented, the point should be made that these are letters. That they are all letters. And that letters are used to make words.

Letters we have received from parents indicate that after viewing the program children begin pointing out the letter they have learned in magazines and in books. This could be used to define the role of letters for the child. The letter could be pointed out in books. The point could be made that we read books. We read words in books by sounding out the letters. Letters are for reading.

The domains of letters and numbers should be brought into contact and their respective functions should be distinguished. A game could be played where a pile of letters and numbers gets sorted into two piles: letters and numbers.

As the sort is carried out the child could be shown that 2, 5, 7, etc., are numbers and that they are put in the same pile because they are all used in counting. O, R, W, etc., are all letters and they are used in reading.

## Recognizing Letters

There were impressive gains in the number of children who were able to recognize specific letters after watching "Sesame Street." In the task the child was shown four letters and asked to "Find the W." The gains were generally higher for capital than for lower case letters. Although the gains are impressive there is still room for growth. After Six Weeks of programming the highest performance was on the letter J with 74% of the children identifying this letter correctly. The children were not as successful with the remaining seven letters in this subtest.

Some children, when shown a W which appears in a set of four letters and asked to name this letter can successfully label it, but when asked to find the W by themselves they seem to become confused.

### Implications

Although the children are becoming more familiar with the individual letters taught on the program they may not possess the strategies necessary to solve this task correctly.

### Recommendations

The strategy the child must learn to solve this form of problem is that of sustaining an image of the letter in question while he checks a succession of given letters to see which one matches his "standard." (Our experimental children seem to have problems every time they encounter this format on a test, whether with letters, numbers, forms, or whatever.) For example, given the following ... A S P C A ... and asked to find the letter S, the children often need to be taught to know the following:

- -only one of the letters is an S
- -all of the rest of the letters are <u>not</u> the S. (For the young child this does not necessarily follow from the above statement. Each should be mentioned separately.)

Certain <u>procedural strategies</u> follow from the above. Since only one of the letters is the letter S the child can be taught to make a systematic left-to-right check, proceeding letter be letter to test each against his "standard." For each letter he should make a "yes" or "no" decision relative

to this "standard."

Since all of the other letters are not an S, the child can be taught to use the process of elimination. If he knows that the first letter is an "A" then this letter is definitely not the "S" and the number of choices is narrowed.

One way to make this clear to the child is to develop games that will teach him to use these strategies. For example, the standard he uses could be a real one. A cardboard S could be shown to the child and then placed in a box. The child could then be shown the set of cardboard letters A S P C A. When a tentative decision has been reached about the correct letter, the standard could be taken out of the box and compared, systematically to each of the letters in the set.

## Naming Letters

Substantial gains have been made in the ability to name letters by the viewing group. The children were tested on 16 capital and eight lower case letters. Performance, in general was better on capital letters. For the capitals, after six weeks of programming less than half of the children were able to name 12 of the 16. The exceptions were A,B,O and W. For lower case letters, less than half of the children could name any of the eight letters tested. This indicates that although solid gains are being made there is still a good deal of room for growth.

## Implications

The gains that are being made in naming letters suggest that the methods currently being used to teach this skill are working effectively. The testers report that the major variable in the child's getting the name for a letter correct is in knowing that name. There still seems to be some confusion between letters and numbers and between letters and other letters.

The poorer performance on the lower case letters could be the result of several factors: (1) They are nor stressed as heavily on the show. Although there are cartoon films for lower case as well as capital letters, many of the additional scenes dealing with letters involve capitals. These segments seem to be very impotant. More recent data (after three months of viewing) shows impressive gains on the letter "i." This seems largely due to a segment on the show in which Big Bird was given the responsibility for guarding the letter "i" and the dot ran away. (2) The children are shown two things, a

capital and a lower case letter and given the same name for them. This may be confusing for the child. He may think he made a mistake calling the capital letter by that name when he sees a small letter and is told that this is the "r."

Recommendations

The confusion between letters and numbers seems to occur for two reasons: (1) The child doesn't recognize the two domains exist and are separate. This could be clarified for him. (See the suggestions for teaching this distinction which appear on Page 3, Defining the Domain of Letters.) (2) The child krows more names for numbers than he does for letters. He may not know that 3 is a "three" but the label "three" is available to him. When he is frustrated or confused he may try to name a letter with this label. He has seen both letters and numbers on "Sesame Street" so in many ways it is a good guess for him to make. This confusion could be cleared up if the child had a definite stimulus to attach this label to. For example, if he knew for certain that 3 was "three" he would be less likely to call K a "three."

The confusion that exists between letters seems to be related to how they look. The mistakes that the children make are in naming a letter with a label for a letter that resembles it quite strongly such as B and P or M and W.

The Workshop advisors in reading suggest teaching the children to discriminate between letters having a similar shape, but not between letters which are reversals of one another such as M and W or b and d. Some of the letters that could be taught in pairs so that their differences could be stressed are shown below:

| Capitals | Lower Case |
|---|---|
| F - E | a - d |
| A - H | n - h |
| O - C, Q, G | n - m |
| P - R | i - j |
| V - U | k - x |
| X - K | g - y |
| M - N | c - e |
| W - V | |

There are several methods that can be used to teach children to discriminate one letter from other letters. The child could be shown one letter at a time and told to say or do something each time he sees the "f." In this situation a variety of letters could be presented but the child must only respond to the "f."

A second way children could be taught to discriminate among letters is by pairing letters where confusion may occur. When this is done the discrimination could be taught two ways. Taking the letter B, the letter could be paired with P. Each time the letters are presented the child must find the B. This could also be done by having the child name both letters when they are presented together.

The Sorting Game could also be used with the confusing letter pairs. The child could be asked to find the letter (B) which is not like the others (P's). The child could also be asked to sort B's and P's into separate piles.

## Initial Letter Sounds

There was virtually no gain in the ability of children in the experimental group to discriminate initial letter sounds as measured by the ETS Letters Test. The children were shown four pictures and asked to find the one that started with T, C, A, or P.

### Implications

If the child does not understand what we are asking in a problem like this then the problem most probably extends to the situation where we say that Wanda is a W-word. We are using this technique to teach the letters S, T and X. There is reason to question whether the children have any understanding of what we are saying to them when we talk about T-Words, etc.

### Recommendations

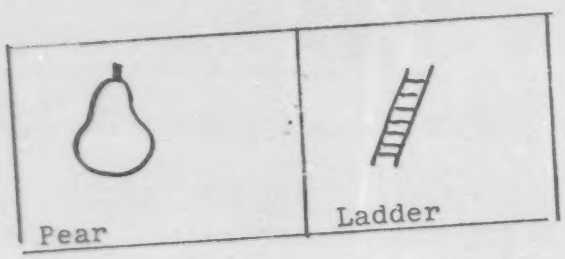
The children should be taught that letters have a name and a sound. When we read we say the sound of the letters. The segment on Kermit teaching the sound of B was very well done. Perhaps after this segment is shown the children could play a game where they must choose the picture that starts with B. Have simple pictures the children will be very familiar with such as Television, Bird, Cow and Monkey. Take each word and check it against the B-sound. Some other methods for teaching initial letter sounds are described below:

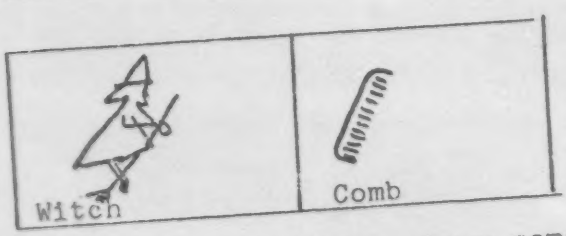
- Present words with the same initial sound simultaneously instead of always sequentially.

- Talk quite directly to the point that each of several different words can have the same letter. For example, present the following pictures...

...then move a cut-out letter "r" from one word to the next. Point out that the words ring, rope and ribbon start with "r" and the word car ends with "r."

- Make a game of picking which of two pictures shows something starting with a given letter. For example show the following pairs...




...and ask which picture shows something that starts with a "P" or "L" or "W" or C." Guide

the child step by step in going from the name of the object -- to the discovery of its initial letter sound -- to the identification of the printed letter form which represents that sound.

- Do the process in reverse. Start with a letter, identify the sound it represents and then locate objects or pictures starting with that sound.

## Recitation of the Alphabet

Although there were substantial gains in the ability to recite the alphabet , at the end of six weeks of programming still less than 25% of the children could recite it in its entirety without making a mistake. There seem to be plateaus of learning. EFG, for example, seem to be learned as a unit. There is a definite drop in the percentage of children who continue to H.

### Implications

The children seem to learn the alphabet in "runs." Errors seem to occur most frequently following certain specific runs. These runs should be linked together for the child. Often the runs are spoken as though they are a single word. Perhaps the child has not realized that the letters he is learning are the same things that make up the alphabet.

### Recommendations

Have the child watch someone put together a disorganized set of letters to form the alphabet. Have one cast member start of saying the alphabet, A-B-C (each time finding the letter and arranging them in order). Have this person stop at D, not remembering what comes after C. Let him find someone who can help with the next sequence... DEFG... again finding the letter each time. Continue until the entire alphabet is stretched out, in order, on the floor or street. It might be possible to take the letter that is being taught on a given day and have that letter be the one on which the cast member is stuck.

Be sure to point out that the alphabet is made up of these letters. Point out, too, that the alphabet is the complete set of letters, that there aren't any more. Maybe someone could sing the alphabet song to show that all the letters are there.

The use of the alphabet song to find what letter comes next should be demonstrated to the child. When Oscar couldn't remember "z" it would have been nice to have someone suggest that he sing the song and that that might have helped him remember the "z."

## FORMS

In testing for the child's knowledge of forms two types of items were used. In the first the child was shown a page on which four forms were printed. He was asked in turn to point to the circle, the rectangle, a triangle and another triangle. Performance was high for triangle and circle (100% of the children successfully identifying the circle). There was a substantial gain in the number of children identifying rectangle correctly, but at six weeks there were still only 55% of the children who responded correctly on this item.

On the second set of items the children were shown another set of four forms. They were asked, in turn, to name the square, the rectangle, the circle and the triangle. Gains of over 30% were made by the experimental group in labelling the square, rectangle and triangle. There was a 13% gain in the ability to label circle.

### Implications

The methods that are presently being used to teach the names of these shapes are working effectively. Although gains have been obtained in the knowledge of rectangle, this form remains the least familiar.

### Recommendations

The children were able to identify three of the four forms correctly on the recognition subtest (over 80% correct performance on square, and triangles). Still, with only the rectangle remaining unfamiliar to them they did not realize that this one shape that was left had to be the rectangle. If the children could use the process of elimination that was mentioned earlier in regard to items of this type, they would have successfully identified the rectangle. (See Page 5, Recognizing Letters).

Of the shapes tested, circle was the most familiar at Pretest. The children should be most "ready" to learn this name if they do not already have this label available to them. Still there was a proportionately small gain on this item in the labelling subtest. Perhaps we have stressed the concept 'round things" while neglecting to teach the label "circle."

Rectangularity should be more heavily stressed. This should especially be done in identifying rectangular objects. Perhaps the "hidden figures" game could be used with the child required to find rectangles.

# NUMBERS

In the area of numbers, like that of letters, substantial gains were made by children viewing the program. In general, when subtests of the Numbers Test corresponded to subtests in the Letters Test scores tended to be higher in numbers than in letters.

Because of the central role numbers play in the program the individual subtests are discussed below.

## Defining the Domain of Numbers

As in the Letters Test, a page with eight printed numbers was presented and the children were asked two questions: (1) What are these called? There was no difference in the amount of gain made by viewers and nonviewers on this question. Both groups registered gains of about 20% with the number of children successfully answering the question of about 70%. (2) Are they used to count or to read? Over 80% of the children in both experimental and control conditions answered correctly.

### Implications

Children are much more familiar with the domain of numbers than that of letters. Since there was little difference in performance of experimental and control children it is impossible to determine if the methods being used to teach this concept are working. Gain was made by the experimentals, but also by the controls.

### Recommendations

Tell the children quite directly that 1, 2, etc., are not cabbages, fruit or automobiles, but that they are numbers. (In explaining why certain other things are <u>not</u> numbers, we can impart a great deal of information about what numbers are.) Explain that numbers are used to count and that we count to find out how many things we have. (Strictly speaking, the written symbol is the numeral, or it can be called "the way we write numbers," but it should not be called a number, because teachers in school now tend to insist on the distinction.)

Distinguish between letters and numbers. This has been suggested earlier (See Page 3, Defining the Domain of Letters).

## Recognizing Numerals

In this subtest four numerals were presented on a page and the child was required to find the 1,4,10, 2, 6, and 20, each from a set of four numbers. With the

exception of 20, which was not treated in Jazz Numbers or the Henson Number Films, gains of around 20% were made by the children in the viewing group. Again in this subtest, the children had a high degree of familiarity with the three numerals that were not 20, but did not know how to use the process of elimination to determine that the one numeral they did not know was, in fact, the 20.

Implications

The methods presently being used to teach the recognition of numerals are extremely effective. The children are now showing a high degree of familiarity with the numerals 1 through 10. The data indicates that it is possible to go further in the area of numbers, stressing the numerals 11 through 20.

Recommendations

The numerals 6 through 10 should receive more emphasis that 1 through 5. With the exception of the numeral 10, itself, there is a drop in the percentage of children successfully identifying numerals larger than five. There is an even greater drop in performance on numerals larger than 10. For the children who have successfully mastered the earlier numbers, it would be beneficial to begin introducing material that is more advanced, particularly recognition of numerals 11 through 20. (We still recommend introducing the concepts of enumeration and numerosity primarily through the use of the first ten numbers.)

Naming Numerals

The data on naming numerals directly reflects the findings from Recognition of Numerals. The drop in performance after 5, and the even greater drop after 10 is reflected in the following data taken from the Six-Week Testing of the experimental group:

| Numeral | % Labeling Correctly |
|---|---|
| 1 | 84 |
| 2 | 68 |
| 3 | 72 |
| 4 | 81 |
| 5 | 73 |
| 6 | 58 |
| 7 | 49 |
| 8 | 55 |
| 9 | 40 |
| 10 | 57 |
| 11 | 24 |
| 12 | 9 |
| 17 | 12 |
| 20 | 15 |

Implications

The results from the Six-Weeks Testing indicate that there have been substantial gains in performance of children viewing the program. The numerals 1 through 5 are now quite familiar. There is good reason to continue teaching 6 through 10 as about 50% of the children we tested are still unable to label these numerals correctly. There is, however, good reason to go beyond the numeral 10, for half the children are already able to perform correctly on 1 through 10 and they are ready to learn more.

Recommendations

A heavier emphasis should be placed on the numerals 6 through 10, and an effort could be made to introduce the numerals 11 through 20. It doesn't seem that the same films would work as well for these higher numerals. In both the Jazz Numbers and the Henson Number Films, numerosity is stressed. It is difficult for the child to visualize more than about five objects at once. It is suggested that straight labelling of numerals 6 through 20 could be taught if we choose to so extend our goals, much as it is done with letters. The children should see that this funny thing is a "six" or an "eight" as well as knowing that there are six things or eight things on the screen. The figure-eight in ice skating may be one way to introduce this. A football player with a numeral 12 on his shirt may be another.

Counting the Number of Objects (Enumeration)

The children were quite skilled at counting out up to five objects. Beyond five there was a substantial drop in performance.

Implications and Recommendations

As in the recognition and labeling of numerals the children appear to have mastered the numbers one through five and are ready to go on to more advanced numbers. The problem, and the objectove, is to prompt the children to add one more object each time they add one more number in the number sequence. They often count faster or slower than they add new objects.

Recognizing Relative Amount

Children were tested for their understanding of concepts like fewer, most, same and more. This was done in a multiple-choice format. The child was shown several pictures depicting varying numbers or amounts, and were asked to point to the picture that had the "fewest ladybugs," etc. The concepts of "more" and "all" were fairly familiar to the children. Slightly over 60% were able to identify pictures with "same number" and "most" correctly. The concepts of "fewer" and "fewest," on the other hand were very difficult with less than 20% of the children responding correctly on these items.

Implications

The children are not as familiar with relative amounts as they are with specific number of objects when that number is one through five. The familiarity that the children have shown with the concept of "more" indicates that they may be ready for conservation problems (see below).

Recommendations

There should be a greater emphasis on concepts dealing with relational quantities. Comparatives and superlatives, especially, should be stressed.

It may be possible to begin teaching conservation of mass. This simply means that although a given object may change shape the amount of material that comprises it will remain constant. This is usually demonstrated with clay which can be rolled into different shapes such as ball or sausage-like shapes. The child can be shown that two balls are the same, then one is changed in shape and the two balls still have the sme amount of clay in them. We should check with our advisors before introducing this sort of problem, but the data suggest that the children are ready for conservation.

Counting (Rote Recitation)

The data show that even prior to "Sesame Street" most of the day-care children which comprise our particular sample could already count to 10.

Implications

Since the children are already able to count to 10, they are ready to learn more. The counting itself could be extended or the counting could be used as a tool for teaching the children other things.

Recommendations

Counting could be extended to twenty. The progression from 11 to 20 probably will be more difficult for the children. These numbers are less familiar to them and they are "larger" words to learn. Perhaps these could be taught with a rhythm, as with jumping rope.

The counting process can be used to help impart the concept that each successive number is one more than the previous one. This could be done in the following manner:

(1) Begin with one object. Count it and call it <u>one</u>.

(2) Add one object. Count again. Stop with two.

(3) Proceed up to about seven, recounting the entire set each time one more object is added.

(4) Let one of the characters have an "Aha!" experience to the effect that you don't have to count each time to know how many are there when you are adding one. It's simply the next higher number in counting.

(5) Show this is true by predicting that the next number will be eight by counting. Then add the next object and count the objects giving eight.

This approach should help simultaneously the processes of rote counting, enumeration, addition by one and the iterative principle of number sequence.

## Relations

Ten concepts were tested in the Relations Test: (1) Biggest, (2) Smallest, (3) Over, (4) Nearest, (5) On, (6) In, (7) Under, (9) Between and (10) Around. The relations Biggest, Smallest and on where familiar to the children at Pretest and performance was near the ceiling on these items. There were gains of 25% or more on Over and Around. Performance was poor on the item testing for knowledge of "in." On other measures of children's familiarity with concepts, this is usually one of the earliest learned. This suggests that it was not the concept but the particular item in the test that caused the low performance.

## Implications

The improvement on the relations "over" and "around" suggest that the film "Over, Under and Through" is having a positive effect in improving the children's familiarity with these concepts. It is puzzling that "through" does not show this same gain, especially since it receives the additional emphasis from the film of Alice Braithwaite Goodieshoes. Perhaps it is the item on the test which is causing this result. In any case, the data seems to imply that the following relations need a stronger emphasis in the future programs: Nearest, Through, Under and Between.

Recommendations

Some of the films and present methods of making these relational terms salient include the Alice Braithwaite Goodieshoes films, the muppet who is found next to, under and on top of the box, and the "Over, Under and Through" film. More material of these types would be highly desireable.

A different approach would be to make the familiarity of with these relations have some "pay of value" for the viewer. Games could be played with the viewing audience where they would be right if they picked the picture showing the man that is between or under the tree. The child could also be given riddles like "what is on your face and between your eyes?"" "What is on your forehead and over your eyes? You have two of them." "What do we put on our foot that goes between our foot and our shoe?" "What do we wear on our hand that we stick our finger through?" "What do we wear around our wrist that we put our hand through to put on?"

Using this type of an approach, some of the less familiar body parts would be emphasized together with the relational concepts.

It would probably helpful in defining the relations to show what they do not mean. This could be accomplished by having someone make an error. When asked to put his hand through a hoop Ernie might put his hands around it instead and be corrected by Bert.

Another approach might be to show a series of instances of a single relationship in quick succession. For example consider the following questions asked in quick succession:

1. A place setting is shown without a plate. Ask: What goes between the fork and the knife?

2. Show a car with no wheels floating above a road. Ask: What goes between the car and the road?

3. Show two pieces of bread with a space betwen them. Ask: What goes between the slices of bread to make a sandwich?

4. Show the letters A and C. Ask: What goes between them?

## SORTING

Two subtests comprised the test of sorting, (1) Sorting and (2) Completion. In the Sorting, the child was shown four objects and asked to find one that was different from the others or didn't belong. Impressive gains were made on this subtest with the experimental group showing a 25.3% increment in performance. In the completion the children were asked questions of the following type, "You eat bread, you eat chicken, what else do you eat?" Performance on this subtest was very high on this subtest with the children reaching the ceiling on several items.

### Implications

The gains in sorting skills among "Sesame Street" viewers were quite striking. They are perhaps the best evidence that the program is capable of teaching higher-level cognitive processes. The format used in testing for knowledge of children is essentially the same as the format used to teach sorting on the show. This format has proven to be very successful.

### Recommendations

With the evidence that we have obtained showing substantial improvements in sorting following viewing of the "One of these things is not like the others" segments, it seems highly desireable to begin extending this skill to other contexts.

One way to help the children generalize their newly acquired skill in sorting is to use one or more of the prominent elements from the present teaching format in connection with new forms or applications. For instance, the sorting song could be used in the following kinds of situations:

(1) Alter the form of the display in various ways

a. Set the four objects in a row, occassionally, rather than always displaying them in the four-fold table.

b. Find examples in everyday situations

- three whole eggs in their shells and one cracked egg in a frying pan
- three baby animals and one mother
- three good tires and one flat tire on a car
- eleven eggs and one cookie in an egg carton

(2) Alter the basic structure of the problem

a. Show four balloons, three of which are inflated with lighter-than-air gas, and one which is inflated with plain air. You must release the strings to see which one is not like the others.

b. Show four people about to do a dance. When they start, one does it differently.

c. Show a large number of objects, two of which are different from the others. Adjust the song accordingly.

d. Show four strings of beads, where the beads on one string are arranged in a different pattern than the others.

3. Occassionally show some important consequence of things being different from other things

a. Show someone receiveing an assemble-it-yourself toy with one wheel or one leg different than the others.

b. Show three yoyo's one of which has no string.

c. Show four cupcakes, one of which has a fingerfull of icing scooped out. Show four kids, one with icing on his finger.

d. Show a child being rewarded for being different in a situation, or a group of children picking the runt of a litter for a pet.

4. Teach other goals using the same format

a. Show four faces, three happy and one sad to help distinguish emotions

b. Show four body parts, three of which are found on the face and one which isn't.

c. Show four children eating soup, one who is drinking it from a bowl

d. Show four children with a toy, three of whom share their toy and one who does not

## CLASSIFICATION

On this test the child was shown a set of three objects that had something in common. He was then required to choose another object (from a set of four) that belonged with the first three objects.

Children in the experimental group showed a 19% increment in performance compared with a 10% increment by non-viewers.

### Implications

The gains made by viewers on this measure again reflect the success with which "Sesame Street" is improving higher-level cognitive skills of its viewers. The high level of performance on items of this type suggests that more classification skills could be attempted in the program.

### Recommendations

Multiple classifications could be approached in the following manner. The child could be shown three large red balls and then asked to find something that goes with them. First have the child choose the fourth object from a set of three blocks and one ball. Then have the child choose the fourth object from a set of three small balls and one large ball. Finally have him choose the fourth object from a set of two blocks, one small ball and one large ball. Using this sort of technique one can stress first that the child must look for a ball, not a block. Secondly one stresses the fact that the child is looking for a large ball. In the third stage these concepts are put together. Working in this way one can progress to even more difficult double classifications.

Another way to approach multiple classification is by showing a group of objects or people and finding how many ways they are the same. For example a set of vehicles may be the same because you can ride in them, but they also may have wheels, sindows, doors, etc. A group of people may be the same in many ways, there may be several girls, some of the girls may have blond hair, the boys may all have sneakers or trousers, etc.

Bert and Ernie may have an argument about which two things go together in the following set of object: A red ball, a red and white striped ball and a peppermint stick. Both are right. They can begin naming how many ways the things are alike (round, have red on them, etc.) and find that the balls have more things in common than the striped ball and the peppermint stick.

## PUZZLES

The puzzles test was made up of two kinds of items. In the first the children were shown a picture with something wrong and were asked what was funny about it. In the second set the children were shown a picture and asked to find what was missing. There were problems associated with some of the items on this test and it is currently being revised. Even on items that appear to be clear, however, such as a house with a door missing, performance was not very high.

### Implications

There is a good deal of room for growth in this area. Basically the child is being asked to define a problem. He looks at a picture where something is wrong or missing. He is asked to discover what it is that is wrong.

### Recommendations

Very simple examples should be used to help the child discover what is wrong in a set of situations. For example the child can be shown a glove with a finger missing, a car with three wheels or a man with one leg. He can be asked to find what's missing. These should be done one at a time. If the child can not see what is wrong with a glove that has a finger missing, he may see it when the glove is put one by someone. Show clearly the finger sticking out of the shole where the glove should be. Then have the person pretend to go outside and get a very cold finger. This should make it very clear to the child what is wrong with the glove and why it is wrong. The same thing can be done with the car, have someone try to push a car with three wheels. Have someone try to walk on one leg, etc.